TECHNOLOGY DEPT.

FLIGHT

MAGAZINE

FEBRUARY 1953
35 cents

PUBLIC LIBRARY
FEB 1 0
DETROIT

1953 BEECHCRAFT D35 BONANZA

(See pages 16-17)

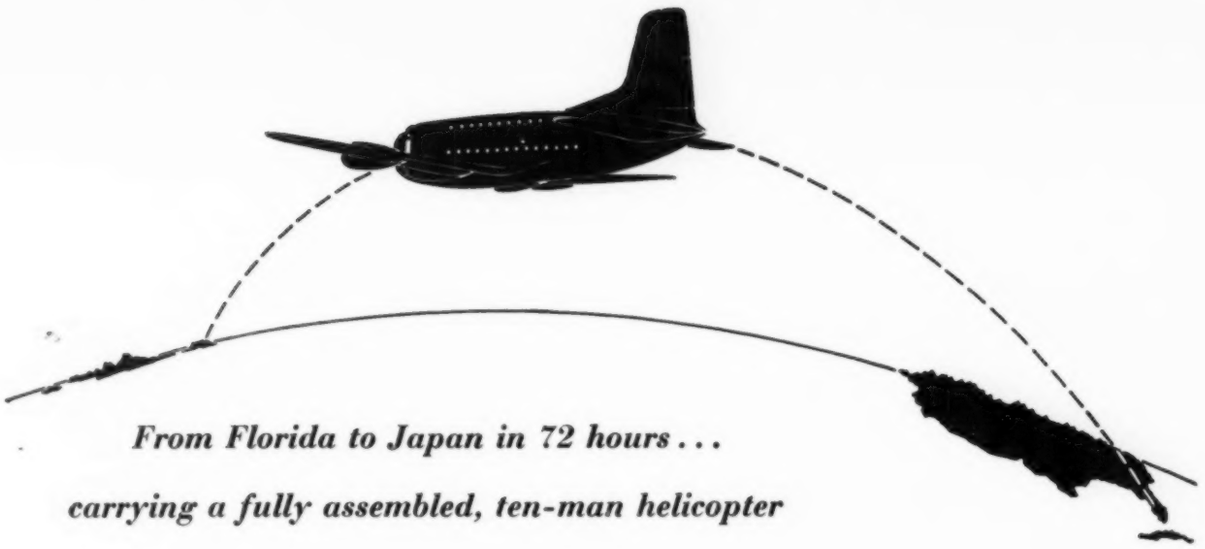
new horizons for business in the...

Golden Age OF Aviation

Like a vision of tomorrow, The Aero Commander, America's new high performance twin-engine business plane, has taken the spotlight in the Golden Age of Aviation. This luxurious plane for the executive embodies the accomplishments of aviation science and aeronautical engineering since the time of the first flight of the Wright Brothers at Kitty Hawk, on December 17, 1903. As the fiftieth anniversary of that flight approaches, the Aero Commander, which is being produced at the rate of two a week with fifty of them already hard at work as tools for the business world, is a fitting tribute to the Wright Brothers for their outstanding accomplishment, and to the phenomenal achievements of those who followed in their steps.

AERO DESIGN Commander

TULAKES AIRPORT • OKLAHOMA CITY, OKLA.



From Florida to Japan in 72 hours . . .

carrying a fully assembled, ten-man helicopter

—the DOUGLAS C-124 Globemaster

From the front lines in Korea last year came calls for a 10-man helicopter. The Air Force had some, but they were in Florida—9,000 miles away.

Normal air transport could make the *flight* in time, but tearing down a helicopter—reassembling it in Korea—would waste a week. So the Air Force turned to a Douglas C-124 Globemaster, the flying giant that covers thousands of miles nonstop with a 25-ton payload. Globemaster opened its clam-shell doors and swallowed the helicopter whole, took off, and reached Japan in 72 hours. Next day, at the Korean front, our men had the helicopter they needed.

Performance of the Globemaster in action is another example of Douglas leadership in aviation. *Faster and farther with a greater payload* is a basic of all Douglas design.

Depend on *DOUGLAS* **First in Aviation**

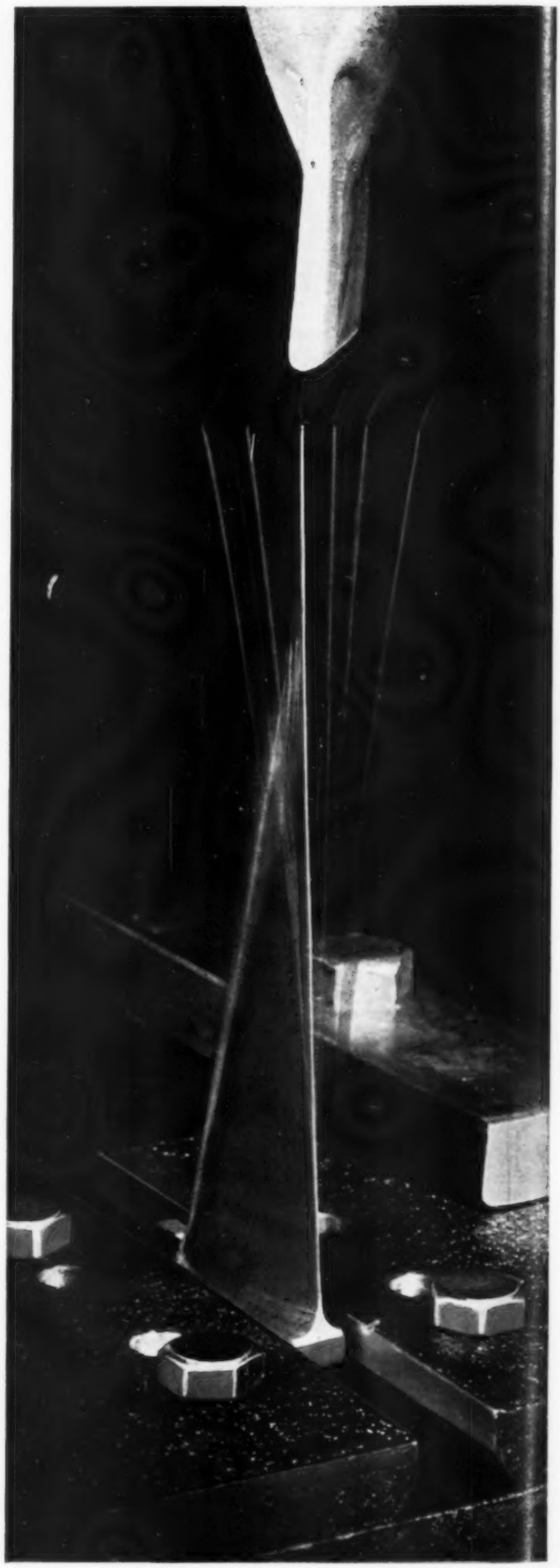
We air-vibrate blades to get longer life in jet engines

You recall the old trick in which a singer shatters a glass by holding a high note at the critical vibration frequency of the glass.

Here at Allison we use a similar idea to determine the fatigue life of jet engine compressor and turbine blades. By electro-magnetic, air jet (as pictured) or siren excitation, we stress-cycle the blade at increasing vibration amplitudes until its endurance limit is reached. This enables us to predict "critical" engine speeds—and with this data we modify blade design for higher performance and longer service life.

Then we go a step further: The information obtained in these laboratory tests is checked by installing strain gages on blades in running engines. This stress-measuring equipment had to be specially designed by Allison engineers to meet the high temperatures, since gages of this type were not commercially available. Many Allison engine improvements have been based upon the results of these tests.

All of this is one example of the engineering thoroughness that goes into every Allison jet engine — a thoroughness that pays off in the greater dependability that has won the confidence of American jet pilots everywhere.

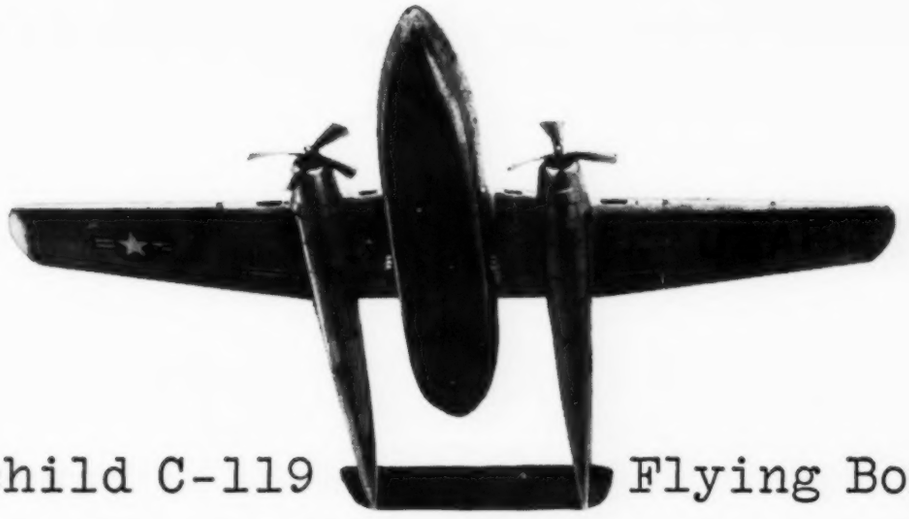


Allison

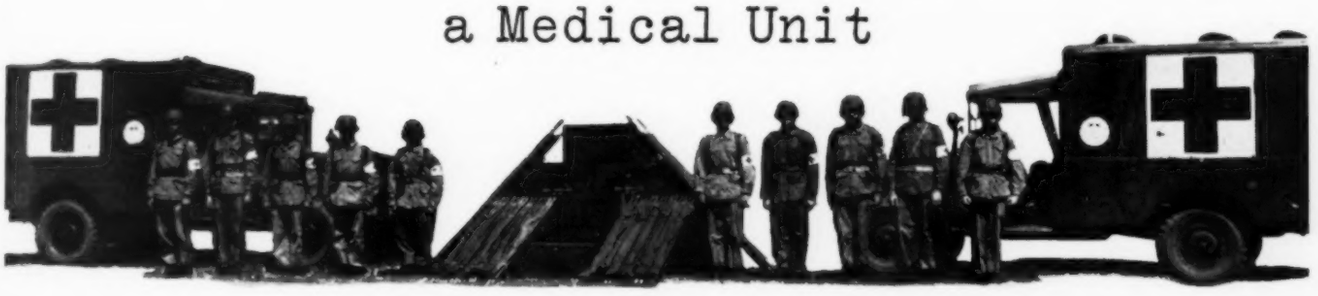
GM GENERAL MOTORS

DIVISION OF GENERAL MOTORS
INDIANAPOLIS, INDIANA

World's most experienced designer and builder of aircraft turbine engines —J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines



A Fairchild C-119 Flying Boxcar
can easily transport
a Medical Unit



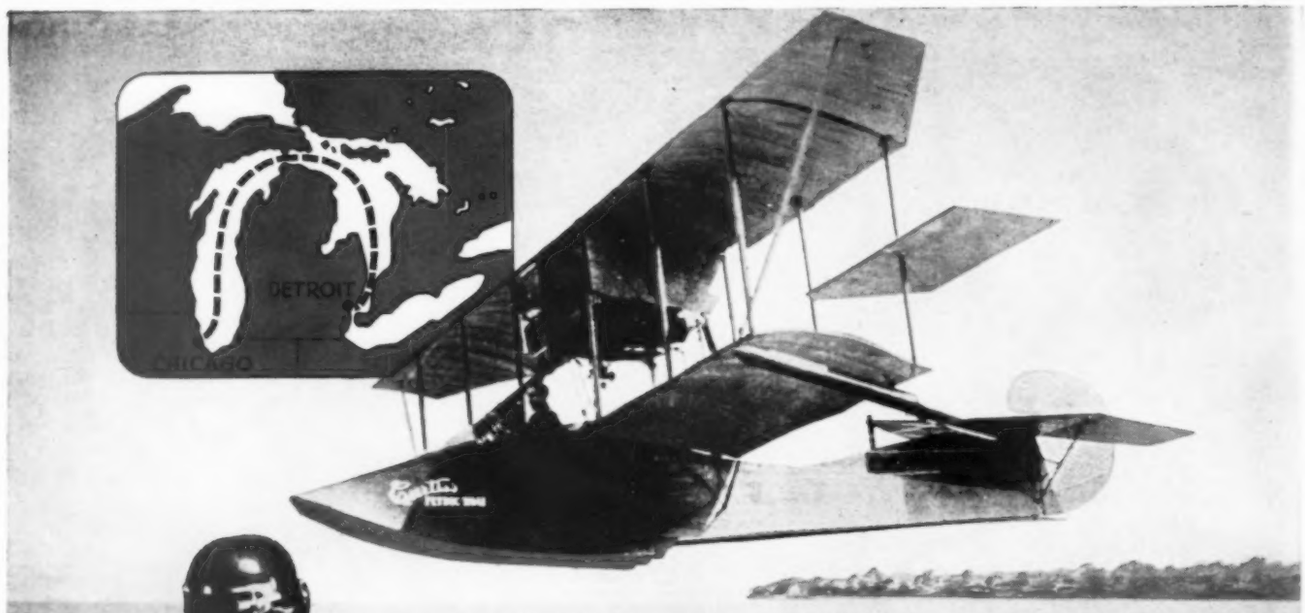
consisting of two ambulances,
ten men, twenty litters
and twenty medical chests...

to an airhead and unload it
in a matter of minutes
and it is being done every day!

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD *Aircraft Division*
HAGERSTOWN MARYLAND

Other Divisions: Guided Missiles Division, Wyandanch, Long Island, N. Y. • Engine Division, Farmingdale, N. Y.

Havens Flies Hydroplane From Chicago To Detroit · 1913



THE FIRST LONG DISTANCE FLIGHT IN A FLYING BOAT—Beckwith Havens was the only pilot to complete the thousand mile endurance race over a circuitous route from Chicago to Detroit in 1913. It took him sixteen days, and then he continued on to New York. His flight in the Curtiss Hydroplane helped show the world just how wrong the skeptics were . . . like the noted scientist who, about that time, was said to have "proved conclusively" that it was impossible for heavier-than-air craft to fly successfully for any great distance.

IN 1953 over a distance comparable to that flown by "Becky" Havens in 1913, United Air Lines' new DC-6B Mainliner, cruising at a speed of 300 miles per hour, can make the flight in approximately 3 hours.

FROM ITS EARLIEST beginnings the aviation industry has drawn heavily on the research and production know-how of the petroleum industry. And Phillips Petroleum Company, a pioneer in the development of aviation fuels has been a vital link in this chain of progress.

Today Phillips is one of the country's largest suppliers of gasoline for military, commercial, and private use. Phillips is also turning out vital fuels for turbo-props and jets as well as tremendous quantities of 115/145 grade aviation gasoline.

Depend on Phillips for the finest in aviation gasolines and lubricants.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips 66

AVIATION PRODUCTS

1903 50TH ANNIVERSARY OF THE AIRPLANE 1953

AIR Report

Significant Trends and News

BEECH IS RUSHING PRODUCTION OF TWIN-BONANZAS and will probably begin by early Summer to fill civilian orders already on hand, these totaling over 100 airplanes. Twin-Bonanzas are also being produced for the Army.

TOTAL OF 3,400 BONANZAS HAD BEEN DELIVERED BY BEECHCRAFT as of mid-January, No. 3,401 being the start of the new 1953 D35 series. . . . **TOTAL OF OVER 3,500 MODEL 170 CESSNAS** had been delivered as of mid-January, 150 of them between Nov. 13, 1952, and Jan. 20, 1953.

FIRST DELIVERIES OF NEW CESSNA 180 will be made on February 28, with over 50 scheduled to take part in a mass fly-away from the factory. . . . **FIRST LIGHTPLANE PRICE INCREASE DURING THE NEW YEAR** takes effect at midnight, February 15, when all but one version in Cessna's Model 190-195 series go up $1,800. The standard 190 with 240-hp. Continental is the exception—it remains at $16,500. New prices on the other versions are $23,550 for the standard 195 with new 300-hp. Jacobs, $18,750 for the 195B with remanufactured 275-hp. Jacobs, and $15,795 for the 195A with customer-furnished 245-hp. Jacobs.

JET TRAINER CONTRACT AWARDED BY USAF gives Cessna and Continental Motors a headstart on the industry in the development of the first jet lightplanes and low-thrust jet engines for possible commercial use (see pages 22-23). Selection of the Cessna, a twin-jet, has been criticized by competing firms on the grounds that a single-engine jet was considered by them as best for primary training.

MOONEY AIRCRAFT, INC., WILL COMPLETE ITS MOVE FROM WICHITA, KANSAS, TO KERRVILLE, TEXAS, MUNICIPAL AIRPORT in February. Although the move will delay the original flight tests of the high-performance 4-place Mooney Model 20, factory officials state the move will accelerate tooling up and production schedules. Mooney now enjoys a healthy backlog on its single-seater "Mite" and is busily engaged on a research and development contract with U. S. Ordnance for a radio-controlled drone, similar in type to the PQ designs Al Mooney engineered and produced during World War II at the Culver plant.

CAA is preparing a study on the operational requirements for radio aids to VFR flying, **WITH EMPHASIS ON RETAINING AS MANY OF THE LOW FREQUENCY RANGES AS NECESSARY.** NAV Panel of the Air Coordinating Committee will soon report on what L-F ranges should be retained for military purposes. Best bet is that no L-F ranges will be de-commissioned so long as the demand by users is substantial, or until greater coverage is available through VOR's. Present CAA budgetary request is for operating the L-F system virtually as it now exists.

DEL W. RENTZEL, former undersecretary of commerce for air and

Riley Contracts for Temco Output of Twin Navion Conversions

Quantity production of Riley Twin Navion conversions by Temco Aircraft Corp., of Dallas and Greenville, Texas, has been arranged, according to Jack Riley. He said Temco output will supplement that of his plant at Ft. Lauderdale, Fla., to meet the demand for the Twin Navion conversion. Temco deliveries are to begin in April and later are to reach 1 a day. Temco has converted thousands of trainers, fighters, bombers and multi-engine transports for many governments, airlines and corporate aircraft owners the world over. The conversion price, which includes complete zero-time airframe overhaul, new engines, new propellers, new interior and all equipment, and new paint job, has been increased to $24,800. Riley said Hartzell propeller officials have conducted tests in Florida with full-feathering Hartzell propellers on the Riley Twin. Performance at gross weight with these propellers is 165 mph. for cruising speed, 6,000-ft. single-engine ceiling, and a rate of climb better than 1,500 fpm., he said.

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

FEBRUARY, 1953 VOL. 39, No. 2

COVER: First photo of Beechcraft's 1953 Model D35 Bonanza emphasizes a change in exterior paint design, departing from the familiar Beech bird-stripe design. Thirty-four hundred Bonanzas had been delivered before the "D" model came out last month.

—(Beech Aircraft Photo.)

Air Report—SIGNIFICANT TRENDS AND NEWS - - - - - - - - 7

Just Among Ourselves—EDITORIAL: THE CASE AGAINST MISGUIDED THINKING - - - - - - - - - - - - 13

New Bonanza Series for 1953—BY TOM ASHLEY—HOW BEECH HAS MADE A TOP-NOTCH AIRPLANE EVEN BETTER - - 16

Continental's Newest Engine—COMPACTNESS FEATURES THE NEW 225-HP. MODEL O-470-A - - - - - - - - - 19

End of the Line, 1938-1953—THE CHANCE VOUGHT CORSAIR IS FINALLY TAKEN OUT OF PRODUCTION - - - - 20

Our First Jet Lightplane—CESSNA'S TWIN-JET TRAINER WINS COMPETITION - - - - - - - - - - - - 22

The Cessna Sales Story—BY DWANE WALLACE—THE PHILOSOPHY BEHIND THE LIGHTPLANE INDUSTRY'S BIGGEST SALES CAMPAIGN 24

Custom Products Boost Business—THIS BEECHCRAFT DISTRIBUTOR WINS PROMINENCE AND PROFITS FROM BONANZA ACCESSORIES 32

Airmen's Calendar—COMING EVENTS - - - - - - - - - - 43

Questions and Answers for Airport Operators - - - - - - 44

GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas—Telephone STerling 2125. EASTERN ADVERTISING MANAGER: ELLIOTT J. FARRELL, Room 443 Chanin Building, 122 E. 42nd Street, New York City. Telephone Murray Hill 3-6379

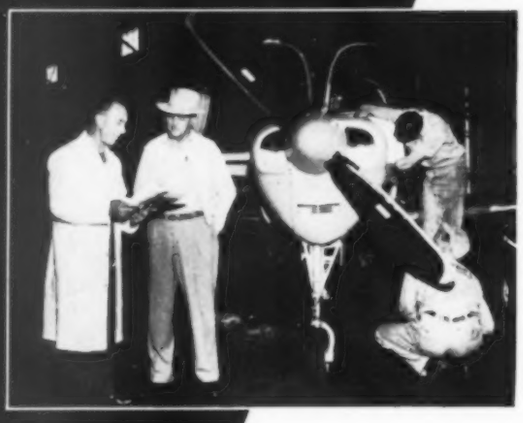
FLIGHT MAGAZINE, February, 1953, Vol. 39, No. 2. Published monthly. Publication office, P. O. Box 750 (1901 McKinney Ave.), Dallas 1, Texas. Price 35c single copy. Subscription rates: United States, one year $3.00; two years, $4.00; three years, $5.00. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879.

Copyright, 1953, by Air Review Publishing Corporation.

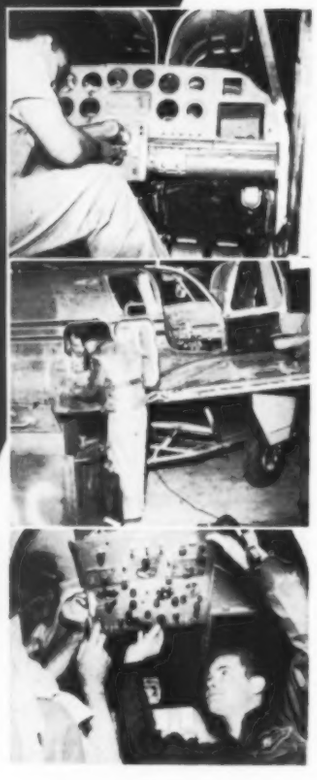
ALAMO *All the Way!*

for personalized

CUSTOMER SERVICE....



At Alamo Aviation the customer receives the kind of personalized attention that makes his job a **specialized service** for his individual requirements. Each and every detail is meticulously discussed to give him a complete understanding of the job and to allow the customer to inject his preferences. This personalized service means the customer always knows the **why** and **how** of any job.



As a major overhaul and repair terminal ALAMO AVIATION is thoroughly familiar with the problems of the aircraft owner. We have developed specialized production processes, backed by our exacting standards, to meet every requirement.

- **Special Instrument Panel Arrangements**
- **100-Hour Checks and Major Overhauls**
- **Custom Radio Installations and Repair**

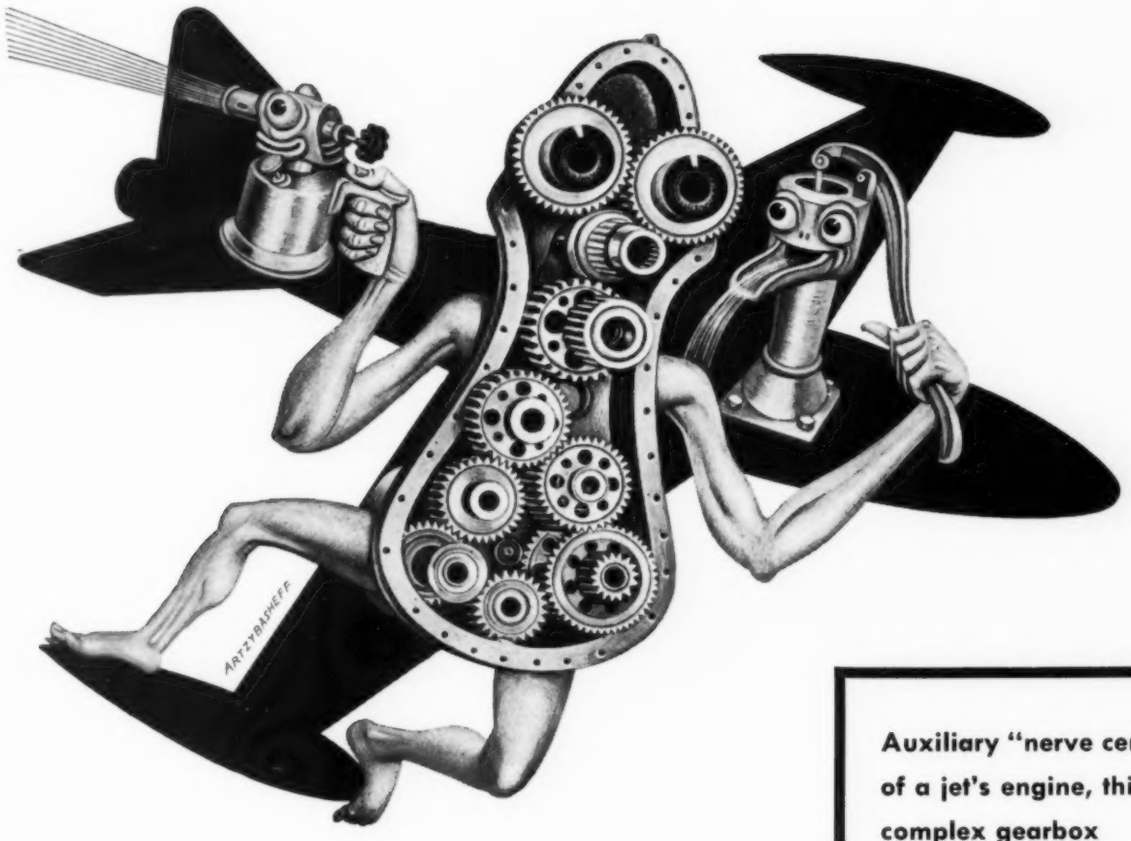
Next time you are in need of service—specialized service—let our staff of experienced and competent maintenance experts handle your aircraft needs. You will find our modern, well equipped shop always ready to serve you with our kind of personalized service.

ALAMO AVIATION, INC.

Municipal Airport **San Antonio, Texas**

Phone Travis 2643

How a jet engine runs on its "nerves"



From a jet's mighty engine, these precision gears "take off" power and pass it along to vital accessory equipment *at the specific rate required by each different* unit. As many as 30 separate gears . . . as many as 2500 separate machining and assembly operations . . . go into this gearbox so essential to safe, efficient operation of a jet. And for this tremendously complex production, Westinghouse depends on Lycoming.

Lycoming stands ready to assist *you*, too. Whether you have "just an idea" that needs development, a problem in the blueprint stage, or a finished metal product that needs precise, speedy fabrication . . . you can depend on Lycoming's long-tested ability to meet the most exacting and diverse industrial or military requirements. *Whatever* your problem—look to Lycoming!

Lycoming's 2½ million feet of floor space, its more than 6,000 machine tools, and its wealth of creative engineering ability stand ready to serve your needs.

Auxiliary "nerve center" of a jet's engine, this complex gearbox transmits the power that runs oil and fuel pumps, generators, and other vital accessories.
To produce this intricate unit for J-40 engines, Westinghouse looks to Lycoming for precision production.

AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

LOOK TO **LYCOMING** FOR RESEARCH FOR PRECISION PRODUCTION

LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.
BRIDGEPORT-LYCOMING DIVISION, STRATFORD, CONN.
AVCO MANUFACTURING CORPORATION

Lycoming-Spencer Division
AVCO Manufacturing Corp.
652 Oliver Street
Williamsport, Pa.

Please send me further information on Lycoming's varied abilities and facilities.

Name_____

Firm_____ Title_____

Address_____

City_____ Zone____ State____

RUGGED as a RHINO... Quick as a Fox!

Two Special Purpose Connectors by

BREEZE MARK

Battery Connectors

8-pin type for both A and B batteries used in all types of field communication equipment. "RUGGEDIZED" for extra security and long service life: polarizing stud is ALL METAL and all metal parts are cadmium plated and sealed with an iridite sealer. Cable may be brought out at any desired side position and locked. Handy bail makes removal from inaccessible places easy.

Quick Disconnect

Simply push male and female members together and lock. To disconnect with minimum resistance, pull back sleeve on plug shell and disconnect. Exceptionally low disengaging force required (less than 6 lbs., excepting pin friction). Vibration proof, moisture-proofed with synthetic rubber insert. Meets AN pin pattern and voltage requirements, in accordance with MIL C-5015. Plug shell and coupling sleeve are aluminum alloy, cadmium plated and iridite-sealed. (Federal Spec. QQP—416, Type 2.)

Receptacle Types: Round flange single hole panel-mounted, square flange for 4 bolts, or specially flanged to specification. All contacts silver plated.

We invite your inquiries on any problems concerning connectors. Our wealth of engineering experience in this specialty is at your service.

BREEZE CORPORATIONS, INC.

41 South Sixth Street, Newark, N. J.

former CAB chairman and CAA administrator, has resigned from the W. R. Grace Company of New York City to affiliate with the Roy Woods trucking and oil interests of Oklahoma City.

JET AIRLINE SCHEDULES BY AIR FRANCE will begin early in June, using 3 de Havilland Comets.

EXECUTIVE AIRCRAFT FLEET OF ARABIAN AMERICAN OIL COMPANY has added 2 DC-6B's, which will make 8 round-trips monthly between New York and Dhahran, Saudi Arabia. . . . **KOLLSMAN'S NEW ALTITUDE MONITOR** is 10 times more sensitive than ordinary altimeters and is being ordered by automatic pilot manufacturers. . . . **HELICOPTER FREIGHT OPERATIONS** between LaGuardia, Idlewild and Newark airports have been contracted by New York Airways, performing the service for scheduled airlines through Air Cargo, Inc.

U. S. WILL PRODUCE 14,500 MILITARY AIRPLANES IN 1953, but Russia will outproduce us, says Republic Aviation President Mundy I. Peale. . . . **AMERICAN GUIDED MISSILE PROGRESS** has reached the point where one model can almost span the Atlantic.

LATEST DC-3 IMPROVEMENT IS A GEARED RUDDER TRIM TAB for which AiResearch Aviation Service, Los Angeles, says it has obtained CAA approval. It permits use of 1,350 hp. for take-off, reducing rudder pedal force 50 per cent and limiting rudder travel to 20 degrees so as to prevent it from reaching the stall zone.

NEW BEECHCRAFT DISTRIBUTOR IN CANADA is Carl Millard, Ltd., Toronto. . . . **BELL PRODUCED MORE HELICOPTERS AT FORT WORTH** than any other manufacturer during 1952, says Harvey Gaylord, Vice president. December deliveries were 67.

R. E. (DUTCH) DUTTON, formerly with Cessna Aircraft Co., has joined Aircraftsmen, Inc., Beech distributorship at Oklahoma City, as sales manager. . . . **JACK KEMP AND WARREN WOODWARD** have opened a public relations firm in Dallas, representing Pioneer Air Lines and other companies.

A NEW PILOT INFO CALCULATOR about the size of a pocket comb is being marketed by Larry Zygmunt's General Aircraft Supply Corporation. The slide rule converts centigrade to fahrenheit, statute miles to nautical, indicated air speed to true air speed, and air speed to ground speed. Fuel consumption problems, fuel costs and aircraft rental totals can also be figured. Edges of the rule are marked for both sectional and world charts in statute and nautical scales. ★ ★ ★

The Most Trusted Name in Ignition

meets the operating needs of every plane

No single type of ignition equipment is the final solution to every operating problem. That's why Bendix approaches each new assignment with an open mind. The particular type of ignition system recommended is decided on the basis of meeting individual requirements for economy, performance and dependability.

Of one thing you can be certain, from the broad Bendix experience and unrivaled facilities will come ideas and products tailored to your needs. For piston, jet, turbo-jet or rocket engines every component part of your ignition system will meet the uncompromising standards of quality established by Bendix over a quarter of a century ago.

This combination of facilities and skill is ready to go to work for you in the solution of any ignition problem from planning to finished product.

AVIATION PRODUCTS

Low and high tension ignition systems for piston, jet, turbo-jet and rocket engines . . . ignition analyzers . . . radio shielding harness and noise filters . . . switches . . . booster coils . . . electrical connectors.

Bendix

SCINTILLA MAGNETO DIVISION
SIDNEY, NEW YORK

Export Sales: Bendix International Division
72 Fifth Avenue, New York 11, N. Y.

FACTORY BRANCH OFFICES: 117 E. Providencia Avenue, Burbank, California • Stephenson Building, 6560 Cass Avenue, Detroit 2, Michigan • Brouwer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin • 582 Market Street, San Francisco 4, California

Facts *and Figures!..*

Figure:

The moral to this has something to do with "Winterization"—what pilots bring their planes to SAC to get, and what blonde Ann Allen hasn't got in her training as an SMU co-ed deep in the heart of sunny Texas. She can't skate, but her trim, 19-year-old, 5′6½″, 118 lb. figure is mighty nice on ice.

Fact:

Few services performed in this winged world of ours can compare with Southwest Airmotive engine overhauls in the complete faith and confidence accorded them by pilots. If you haven't flown behind a SAC-overhauled engine, you have missed one of flying's most trouble-free experiences. Our 200-man engine shop is an authorized service station for both Pratt & Whitney Aircraft and Wright Aeronautical.

Southwest Airmotive COMPANY
LOVE FIELD | DALLAS

Just among ourselves

THE CASE AGAINST MISGUIDED THINKING

WE are concerned and many segments of civil aviation should be similarly concerned with constantly recurring erroneous statements being made by responsible and generally-accepted authorities to the effect that modern non-airline civil airplanes are too costly, poorly engineered and of limited utility. Most of these misguided spokesmen seem to be disappointed that there won't be a million lightplanes in use by 1955, as was predicted seven years ago by a former Administrator of Civil Aeronautics.

Before weighing the consequences of such dangerous and damaging pronouncements, and before suggesting possible remedies, let's take some actual examples, all of current vintage, of the kind of statements we're referring to.

The first quotation is from a new and excellent volume, published by the Yale University press, entitled, *Aeronautics at the Mid-Century*. Despite its erroneous commentary on lightplanes, the book should be on every airman's bookshelf. It was written by Jerome C. Hunsaker, head of the department of aeronautical engineering, Massachusetts Institute of Technology. The author exemplifies the accepted, truly great aeronautical personalities of the age. He is a renowned aviation figure with a splendid, world-wide audience. He writes:

"An official government survey made in 1946 predicted that one million personal airplanes would be in operation in this country by 1955. Of the 90,000 such planes now registered, half are flown less than sixty hours a year; they are not really useful to their owners. The official forecast failed to allow for the inherent shortcomings of the airplanes available and for the costs of ownership.

"There seems to be no immediate prospect of radical change in the situation . . . however . . . we may expect private enterprise to apply the results of available research to the light airplane, to its very great improvement in safety and utility. Unpredictable inventions will be made and costs will come down as manufacturing volume is achieved. A light airplane should not cost more than an automobile except for this matter of volume."

There is a strange parallel in this thinking and that exposed in a recent report by two economics professors of the University of Minnesota's School of Business Administration. They made a study of aviation in the state of Minnesota at the request of the state legislature's aviation committee. The study is most enlightening and factual until they start to deal with the lightplane. Here's what they say:

"In 1943, 10,000 private planes were predicted by the CAA for Minnesota in 1950. Had this prediction come true facilities for private flying would have been clearly inadequate. However, in 1950 there were only 1,810 aircraft registered. It is doubtful that there will be any tremendous growth in the number of private planes owned by Minnesotans. The reason is largely economic. The annual cost (fixed plus direct) of a new Cessna 170 is $2,532 for 50 hours of flying. This hourly cost of $50 is beyond the means of most Minnesotans, for only 9,300 persons in 1950 reported gross incomes in excess of $15,000. And even at that level of income the annual cost reported above would absorb 16.9 per cent of one's income."

The third quotation we would like to cite comes from a rough draft of a letter a high-ranking Federal aviation official proposes to send out to the industry, suggesting a campaign for reviving interest in personal flying. Since his mimeographed letter is a proposal, and not a final draft, identity is not important, but it does exemplify the same kind of thinking that is proving so damaging to the lightplane industry. It follows:

"High cost of flying, lack of utility of the airplane and the accident rates in flying are questions to be posed. The plan should include an attempt at solving these problems. This could be attempted by means of a design competition; a symposium of forward-looking aeronautical designers on cost, safety, utility aspects of today's planes with suggested improvements; or stimulation of manufacturers to produce planes with more appeal to a wider segment of the population."

If you were an ordinary American businessman, or farmer or lawmaker or housewife, and read the above information, wouldn't your reaction be: "Airplane ownership is not for me?" In effect, all three quotations leave the concrete impression that modern lightplanes are too costly, have little utility and aren't safe. That kind of information and thinking has more currency in the public mind than the true facts of modern lightplane flying. That kind of statement is doing more to hold back the intelligent purchase and use of U. S. lightplanes than all the newspaper crash headlines put together, this latter factor getting most of the blame for the lack of widespread public acceptance of modern air travel. The unfortunate thing is that these people just don't seem to realize that the modern lightplane, since the post-war leveling off period and especially after the post-Korea materials debacle, has finally become one of the safest, most economical, most comfortable and productive modes of transportation ever devised by man.

The University of Minnesota researchers point out that it costs $50 an hour to fly a 170 model Cessna 50 hours a year. Don't they have sense enough to know that a man who flies an airplane only 50 hours a year hasn't any business owning one? Or that it costs only $10 an hour (total costs) or a little better than 2 cents per seat mile to fly a 170 Cessna 300 hours a year? Or only $6 per hour or .013 cents per seat mile to fly a 170 Cessna 1,000 hours a year?

And how about that "CAA prediction" of 1946 we keep hearing about? In the first place it was not literally a CAA prediction. It was made by one individual in the long list of CAA administrators who come and go with

(Continued on page 40)

LEADS IN TEXAS!

HUMBLE

ESSO

AVIATION GASOLINE

Humble leads in commercial aviation gasoline sales in Texas. Both private pilots and pilots of executive planes have learned from experience that Humble Esso aviation gasolines are dependable—continuously improved to meet the requirements of modern airplanes. Skyways or highways—stop for service under the Humble sign!

HUMBLE MARKETS:

- Aviation gasoline in four grades
- Jet fuel
- Aviation engine oils in four grades
- Aircraft hydraulic fluid
- Rust-Bans to check corrosion
- Specialty oils and greases

Use your Humble–Esso Aviation credit card at more than 600 airports across the nation.

HUMBLE OIL & REFINING COMPANY

Sterling performance – Cyclone Cylinders in the Constellations of Eastern Air Lines' "Great Silver Fleet" and KLM's "Flying Dutchmen" produce 139 H.P. each... 7,000 to 10,000-hour life... approximately 2,750,000 miles of service per cylinder.

CURTISS-WRIGHT

CORPORATION • WOOD-RIDGE, N.J.

World's Finest Aircraft Engines

JOBS FOR ENGINEERS • ACCOUNTANTS • TECHNICIANS

New Bonanza Series for 1953

Beechcraft passes the 3,400 mark in Bonanza deliveries with an improved model

By TOM ASHLEY

AN improved model of the Beechcraft Bonanza for 1953 is being introduced by Beech distributors following their annual two-day sales conference at the factory in late January. It is the D35—successor to the highly-popular C35 which was introduced two years ago. While the "D" signifies the series, it can very well stand for something else—"De luxe" with a capital "D"—as this new issue is just about as de luxe as it is possible to make a personal-type airplane. It is something else, too—the first "D" model is Beech Aircraft Corporation's production unit No. 3,401, thirty-four hundred of the high-performance, V-tailed, 4-place Bonanzas having been produced as of early January.

Although the new D35 is basically the same airplane as the C35, and the price remains unchanged at $18,990, there are numerous refinements which make it an outstanding example of a good airplane being made better. It is powered with the same 6-cylinder Continental E-185-11 engine, rated at 205 hp. at 2,600 rpm. for take-off, and is equipped with the same Beechcraft Series 215 metal-bladed, electrically-controlled propeller, and has the same performance (see the accompanying table). However, empty weight has been upped a slight 3 lbs., but gross weight has been lifted 25 lbs., for a net gain of 22 lbs. in useful load, the latter now being 1,075 lbs. With full tanks, the D35's allowable weight for people and baggage is 822 lbs., or four persons and 142 lbs. of baggage. While the extra 22 lbs. of usefulness is small, it serves to emphasize once again the exceptional Beech engineering accomplishments which have made and retained Bonanza speed-range-payload standards as tops in its category ever since the airplane was first introduced to the public immediately after World War II.

Other than the slightly higher payload, it is a challenge to determine how the 1951-52 Model C35 Bonanza could be improved. But Beech has come up with several refinements which go farther than the many dress-up items new for 1953. We visited the factory and enjoyed a hop with Vern Carstens, chief engineering test pilot for Beech, while looking over the D35.

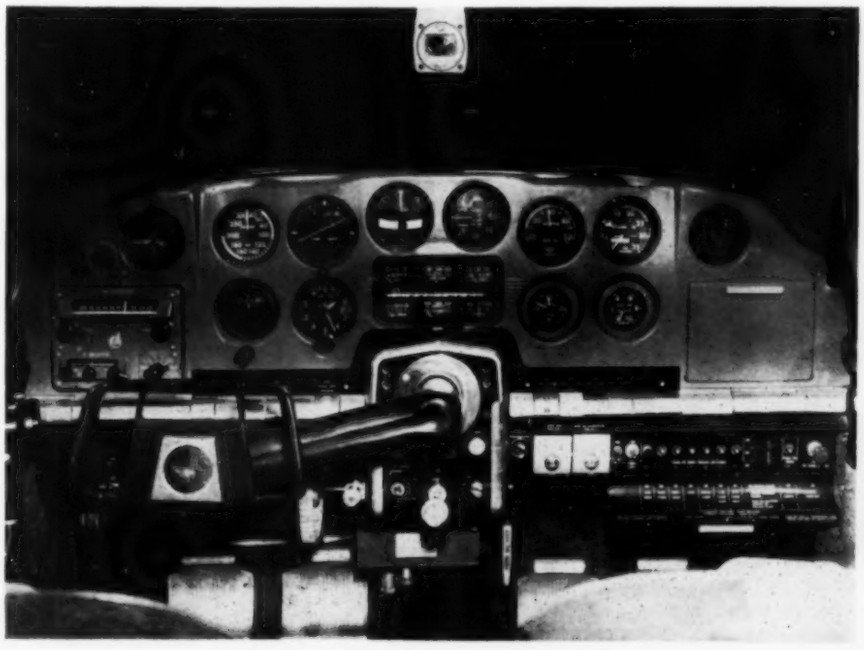
A new exterior paint design, available in 16 colors, became immediately obvious as we approached the 3,401st Bonanza. While we couldn't expect

Tilting seat backs and head rests for front seats are pioneered in personal planes by the new D35 Bonanza. Two of three tilt positions are shown at left with Chief Engineering Test Pilot Vern Carstens at the wheel. Hand below points to tilt control, easily flipped to change position. —(Beech Photos.)

New design for exterior paint job replaces the familiar Beechcraft bird stripe on the Bonanza. Improvements include greater payload.
—(Beech Photo.)

Beech to continue its familiar paint design on through the years, we had been kind of fond of the old Beech bird stripe which has now been replaced. More modern Easter-egg designs are pretty smooth, all right, but the Beech bird deal just looked fast and has always been a symbol of speed to us.

A completely new interior finish has been incorporated in the D35. Among other things, it provides the first multi-position front seats in a personal-type airplane. By the flick of a little aluminum lever, either or both backs of the front seats can be reclined into three positions for better comfort, and the full-tilt position is comfortable enough for a good nap. The Bonanza's rear seat-back has two positions. This kind of Beech ingenuity points up the fact that personal aircraft cabin comfort has come a long way; comfort aloft has a lot to do with aircraft utility. To go with the reclining 3-position front seat-backs in the D35, Beech offers as optional equipment new individual head rests for front seats. These closely resemble the head rests on barber chairs, and can be attached or re-



Larger instrument numerals are fluorescent-painted for easier reading in D35 Bonanza. New medallion in control wheel can be engraved with owner's name or company insignia. Flap and gear control switches on panel have raised shapes for identification by touch. Open panel door shows electrical switches and circuit breakers.
—(Beech Photo.)

moved in the same manner and just as easily. Even better soundproofing has been attained through improved airframe coatings and resilient, long-life door and window seals. Six new upholstery fabric combinations are offered, with genuine leather trim throughout, and high-quality rug material has been carried up the sidewalls as scuff-proof kick-plates. A new leather map pocket at the pilot's left is larger and deeper.

Better cabin ventilation is provided in the D35, which has seven fresh air cabin intakes and two air outlets—a big new intake on the right side just under the panel in front will be especially appreciated. As optional equipment, Beech now offers new green-tinted windows including green tinting for the top portion of the windshield for less eye-strain, reduction of heat radiation from the sun and cooler cabin interior on hot days. As an extra touch of pride in ownership, Beech has a new control-column wheel with an arty placque on which, as an optional item, the airplane owner's personal monogram and company trademark will be added.

Safety features in the D35 are an impressive Beech contribution. New are flap and landing gear panel controls which can be identified by touch and feel, the flap control having a flap shape and gear control having a wheel shape. Panel instruments in smoke-gray tones have larger, easy-to-read numerals which are fluorescent-painted and show brightly in daylight and when "blacklighted" at night. Colors and markings make for less fatigue and more ease of flying. The D35's large rear windows lock automatically when closed even though they are easily opened on the ground. As in former models, these large windows have release pins for use as emergency exits · (we once climbed through one on the ground in the original Model 35 on a fishing trip). Beech shoulder harness for all occupants is again part of the equipment.

Starting up, Vern showed us how a carburetor improvement eliminates exhaust popping when the throttle is closed rapidly. This anti-pop deal was a case of the carburetor people providing more overlapping between the idle and high-speed jets. Vern also pointed out that the green line on the temperature gauge had been moved farther to the right. Some people, especially in South Texas and other hot areas, get heat indications on the ground near the extremity of the old green line and become apprehensive. Moving this green farther over on the gauge won't accomplish any temperature changes but was justified because the green was too conservative on preceding models. It is still a long way from the critical scale on the new gauge.

Our hop with Vern wasn't in search for something new in the D35's take-off, climb, speed, stall or landing. These remain the same as in the predecessor C model because both have the same performance, which is still exceptional for this category after all these years. Beech guarantees its gross weight performance claims within plus or minus 3 per cent, the claims being 175 mph. at 8,000 ft. for recommended maximum cruising speed at 65 per cent of power (120 hp.) and using 10 gals of gas per hour; 190 mph. for high speed at sea level; 1,100 fpm. for sea level rate of climb; 18,000 ft. for service ceiling; 55 mph. for stall speed (landing) with flaps; range at 165 mph. at 10,000 ft. of 775 mi. on 39 gals., 975 mi. on 49 gals. and 1,180 mi. on 59 gals.; 525 ft. for take-off run with 20-degree flaps into 10-mph. wind at sea level; 227 ft. (two hundred and twenty-seven is correct) for landing run at sea level with 30-degree flaps into 10-mph. wind, and 1[illegible].9 miles per gallon of gas for fuel economy at maximum range.

Beechcraft D35 Bonanza Factory Data

Price	**$18,990**
Engine: Continental E-185-11 rated at 185 hp. at 2,300 rpm. and at 205 hp. at 2,600 rpm. for take-off (1 min.). Beech 215 propeller, with metal blades, electrically controlled with continuously variable pitch.	
Gross Weight, lbs.	**2,725**
Empty Weight, lbs*	**1,650**
Useful Load, lbs.	**1,075**
Fuel Capacity, gals.	**39**
Max. Range, mi.†	**775**
Baggage Cap., lbs.	**270**
Cruising Spd., mph.‡	**175**
Max. SL Spd., mph.	**190**
Rate of Climb, fpm.	**1,100**
Svc. Ceiling, ft.	**18,000**
Stall Spd., with flaps, mph.	**55**
Take-off Run with flaps, 10-mph. wind, ft.	**525**
Landing Run with flaps, 10-mph. wind, ft.	**227**
Wing Span, ft./ins.	**32/10**
Length, ft./ins.	**25/2**
Height, ft./ins.	**6/6.5**
Wing Area, sq. ft.	**177.6**
Wing Loading, lbs./sq. ft.	**15.3**
Power Loading, lbs./hp.	**14.7**

NOTE: Performance is for gross weight at sea level unless noted and all performance figures guaranteed within plus or minus 3%. *Empty weight includes complete flight instruments; radio receiver, transmitter, marker beacon receiver; cabin heating and ventilating system, with windshield deicers; soundproofing; continuously variable controllable-pitch propeller; navigation, cabin, instrument and landing lights; unusable fuel and oil. †Maximum range is 775 mi. on 39 gals. of fuel at 165 mph. at 10,000 ft. ‡Recommended maximum cruising speed is 175 mph. at 8,000 ft. using 120 hp. (65%) with fuel consumption of 10 gph.

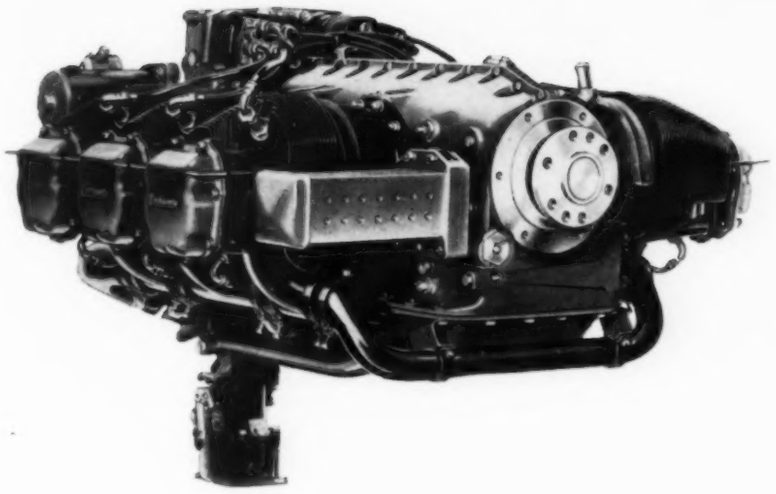
What we wanted to do on this hop was to see Vern demonstrate the Bonanza's almost incredible spiral stability. More and more people are taking single-engine airplanes atop the overcast or finding themselves caught up there even when they do not have either the ability or the equipment to use instruments for a letdown. This happens despite long years of warnings and appeals for instrument equipment and training, without which an inexperienced pilot in a rapidly-accelerating airplane builds up excessive speeds and loads to find himself in serious trouble in the overcast.

This need not happen in a Bonanza —if the Bonanza is allowed to make its own letdown, hands and feet off. At 5,000 ft., Vern backed off the power, lowered gear and flaps, trimmed the elevator full up, placed his feet flat on the floor and folded his arms. Our indicated air speed was 60 mph. as the Bonanza began its letdown. It didn't seem to want to spiral any time soon, so Vern helped it along with a little touch of aileron. The spiral remained gentle for a couple thousand feet. Then we were down into a region of turbulence caused by 40-mph. winds, and the angle of bank became a little steeper and our speed and descent picked up a little. But our spiral never reached any startling proportions—air speed remained below 85 mph., bank never exceeded 45 degrees and rate of descent never topped 1,800 ft. per min.

But what about extreme turbulence in an actual overcast? Vern said he had tried this hands-off, feet-off spiral so many times he had lost count, many of them in extreme conditions. "At the very worst," he said, "the Bonanza never exceeds 110 mph. and the angle of bank never reaches 60 degrees. Sometimes turbulence will cause a change in direction of spiral, but the airplane's inherent stability is always there to prevent excessive speed and load."

Experts in aerodynamics have told us more than once that the Bonanza, if anything, is "too stable." We don't know about that, but Vern's demonstration has convinced us that it certainly has enough spiral stability to avoid trouble if the people who need its protection will only utilize it by following Vern's simple procedure. With the hope that it will be useful, here's a repeat of his procedure: 1. Close the throttle, slowing down to lower gear and flaps. 2. Trim elevator full up. 3. Take hands and feet off

(continued on page 38)



Front view of Continental's Model O-470-A, rated at 225 hp., emphasizes its compactness. Note narrow propeller flange; absence of external oil lines; propeller governor drive at left of crankcase nose; new-type oil cooler mounted integrally with crankcase for downdraft cooling.

Continental's Newest Engine

Here's progress in compact engines, with supercharging as the next step

SIGNIFICANT strides in lightplane engine progress are being made by Continental Motors Corporation in the development of a new O-470 series of engines featuring many advantages and refinements. These new engines offer higher standards of performance, efficiency, dependability, compactness and simplified maintenance.

Supercharging—the dream of lightplane users for many years—is expected to be perfected later for the new line. With a blower available, the sea level engine just won't make much sense to a growing number of people who use their planes for transportation. Continental will make supercharging available at minimum cost, using a belt-driven blower installed as an external addition without affecting the basic engine. This has another big advantage in that possible supercharger failure will not affect the engine itself and the unit can be replaced readily and at minimum expense without removing the engine. Extensive tests have proven the belt drive as practical, says Continental, which reports over 1,000 hours of successful operation of belt-driven propellers, using 15 hp. per belt.

Technical details have not been released on supercharging and other fine points in the new engines. But some general descriptive information has been obtained by FLIGHT MAGAZINE from Continental covering its new Model O-470-A which powers the new Cessna 180, in which it is rated at 225 hp. at 2,600 rpm. This information points up the fact that compactness is the big achievement, as emphasized in the following:

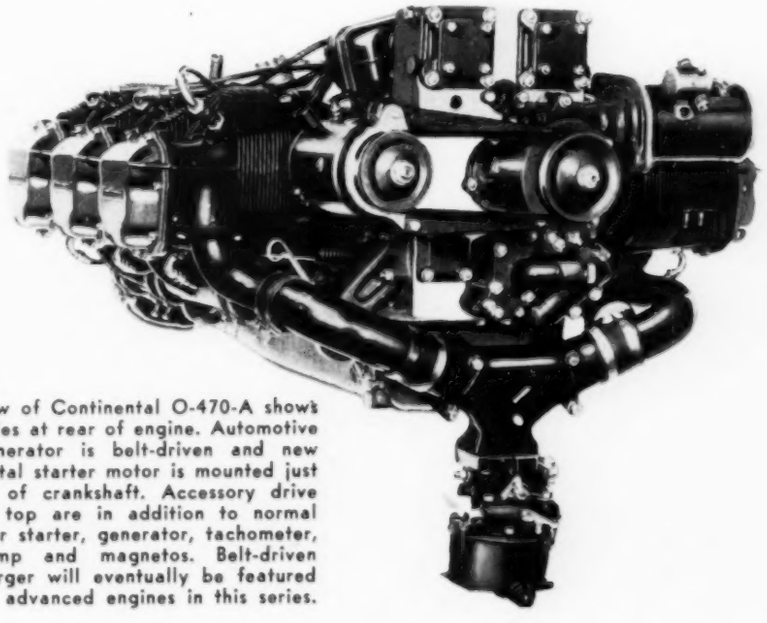
External oil lines have been eliminated completely. A new oil cooler designed by Continental is integrally attached to the crankcase for downdraft cooling, as are the cylinders. A full-flow oil filter mounted within the crankcase supplants the screen formerly used there.

A major factor in compactness is the elimination of a separate accessory case, accessory drives being provided within the crankcase itself. Two standard accessory drive pads are provided at the top of the crankcase, rear. These are in addition to normal drives for starter, generator, tachometer, fuel pump and magnetos. The latter are located for ease of access on top of the engine ahead of the mounting brackets. The propeller governor drive is located at the left side of the crankcase nose, near the propeller, and has no external lines.

A belt-driven, 12-volt generator of automotive type is mounted at left rear, driven from a pulley at the rear end of the crankshaft. This v-belt arrangement eliminates all torsional vibration and coupling problems.

A new, low-cost starting motor, de-

(Continued on page 30)



Rear view of Continental O-470-A shows accessories at rear of engine. Automotive type generator is belt-driven and new Continental starter motor is mounted just to right of crankshaft. Accessory drive pads at top are in addition to normal drives for starter, generator, tachometer, fuel pump and magnetos. Belt-driven supercharger will eventually be featured on more advanced engines in this series.

The first and the last of the Corsairs are shown in these two photos. First fighter to be powered with a 2,000-hp. engine, it was the first to exceed 400 mph. Except for relocation of the cockpit rearward to accommodate a big fuselage fuel tank, the basic design remained unchanged from its origination in 1938 until production ceased in January, 1953. Top photo is an F4U-7, last Corsair built, which went to the French Navy last month. It was No. 12,571.

—(Chance Vought Aircraft Photos.)

End of the Line, 1938–1953

In combat longer than any fighter, the Corsair has finally been taken out of production

THE Navy took Chance Vought Aircraft's bent-wing Corsair out of production late in January. It had bought 12,571 of the F4U's from a design originally proposed on April 8, 1938. First flown in May, 1940, it was America's fastest and most powerful fighter, topping 405 mph. from the start and eventually performing above the 470-mph. mark as the Navy's top first-line fighter.

But retirement from production does not mean combat retirement for the Corsair—a sizable number in several variants are still fighting in Korea. No fighter in air war annals has stayed in first-line combat as long as the Corsair, now a 15-year-old design.

On the production line of Chance Vought Aircraft Division of United Aircraft Corporation in Dallas, the venerable Corsair has been replaced by the Vought F7U-3 Cutlass, a tailless twin-jet fighter which may or may not enjoy as long a career as that of the F4U. While the Cutlass has performed at supersonic speeds, design progress now can be much swifter than was possible during the reign of the Corsair.

It all began in the midst of the military's pre-war confusion over power plants. The controversy between proponents of liquid-cooled engines (for small frontal area and less drag) and

radial, air-cooled engines (for less weight, greater power potential and simplicity) was at its hottest when the XF4U was proposed to the Navy in 1938. It reached the point where Pratt & Whitney came under military pressure to switch its production facilities from radials to liquid-cooled engines—Chance Vought's new fighter was designed around Pratt & Whitney's experimental R-2800 Double Wasp and thus became the white hope for the survival of radial engines in general. In its first test flights, the prototype won the challenge, being clocked at 405 mph. before high Navy officers who pronounced it, without disclosing the speed, as America's fastest and most powerful fighter. When Major General Hap Arnold of the Air Corps heard of the big engine's performance in the Corsair, he gave permission for Pratt & Whitney to cancel its liquid-cooled engine contract and urged the firm to concentrate its energies on radials.

The use of this big 2,000-hp. radial engine was the cause for the Corsair's bent wing. As the world's most powerful engine, it swung the biggest propeller—a Hamilton Standard of 13-ft.-4-in. diameter. Chance Vought engineers, faced with ungainly landing gear legs and concentrating on aerodynamic cleanness to counter the engine's large frontal area, conceived an inverted gull-wing configuration as the solution. It made possible a practical landing gear length, gave the wing a right-angle joint with the fuselage for minimum drag, afforded better visibility from the cockpit and reduced the height of wing folding to meet carrier hangar-deck restrictions. Their solution proved correct from the start and the bent wing was to remain that way without change throughout the life history of the design.

Although the Battle of Britain had seen the Luftwaffe threaten British resistance while aviation-starved France was folding up into surrender, the prototype Corsair's high-performance tests were allowed to rock along for months before the Navy finally ordered production of Vought's F4U-1 on June 30, 1941. Later, Brewster Aeronautical Company and Goodyear were designated as associate contractors to produce the Corsair. With the Japanese attack on Pearl Harbor, large-scale output was ordered and the battle for production was belatedly launched. The first production-model Corsair made its first flight twelve months later on June 25, 1942. It was not until February, 1943, that the first Corsairs entered combat — U. S. Marine Corps pilots in VMF-124, based on Guadalcanal, launched the new planes into action. For more than a year after that, Corsairs were limited to land-based service and it was not until late in the Spring of 1944 that the Navy began regular carrier operations with the powerful Vought fighters. They had outfought the best of the Jap designs from the start, but tail-wheel and main landing gear oleo modifications were necessary to eliminate what the Navy called their "built-in bounce" before regular carrier operations were allowed. The British Royal Naval Air Force had begun Corsair deck operations nine months earlier than the U. S. Navy—such were the penalties of unpreparedness in U. S. air power despite repeated crises and threats of war during the 1930's.

During 1944, the Corsair's combat performance had been upped to 449 mph. through engine and propeller refinements. By the time production was ceased last month, the Corsair's combat speed had been boosted beyond the 470-mph. mark. Its R-2800 engine produced 1,975 hp. at 20,000 ft. in the F4U-1 but refinements carried its output well above the 2,000-hp. mark at altitudes far above that of the F4U-1. Postwar F4U-5's were developed for combat above 30,000 ft. When production ceased last month, the last Corsair was an F4U-7 for the French Navy. Models now in combat in Korea include F4U-4, -4B, -5, -5N, -5P, -5NL and a ground-attack version called the AU-1.

Against the Japs and the Communists the Corsairs have been credited with great victories. From Guadalcanal to V-J Day, they are said by the Navy to have destroyed 2,140 enemy planes in air combat at a loss of only 189 Corsairs in air combat. This is a victory ratio of 11.3 to 1. One Marine squadron of Corsairs shot

(Continued on page 38)

Corsair Performance and Specifications
Factory Data

	F4U-1	F4U-4	F4U-5
Engine (Pratt & Whitney)	R-2800-8B	R-2800-18W	R-2800-32E
Take-off Power, hp.	2,000	2,100	2,300
Combat Power @ Alt., hp.	1,975 @ 20,000	2,100 @ 26,200	Restricted
Gross Wt., lbs.	12,086	12,214	12,901
Empty Wt., lbs.	8,823	9,132	9,691
Max. Spd. @ Alt., mph.	415 @ 20,000	449 @ 26,200	473 @ 31,200
Rate of Climb, fpm.	3,110	4,430	4,840
Service Ceiling, ft.	37,100	41,100	43,400
Max. Range, miles	1,980	2,200	1,815

NOTE: Performance is for sea level at gross weight unless otherwise stated.

First fighter to outperform the vaunted Japanese Zero, the Corsair also distinguished itself as a bomber. Old No. 122 was officially cited for outstanding achievement in a commendation from Maj. Gen. Louis E. Woods for carrying bomb and bullet to the Japs in 100 combat missions, each trip with 1,000-lb. bombs—"without once causing trouble, without a single time requiring pampering or special favors."
—(Chance Vought Photo.)

Our First Jet Lightplane

Cessna twin-jet design tops 14 others to win Air Force competition

AMERICA'S first lightplane designed for jet power will be Cessna Aircraft Company's twin-jet Model 318. It recently won out over 15 designs by eight manufacturers in an Air Force competition for jet-powered primary training planes. The initial, or "phase one," contract received by Cessna is being monitored by the Air Research and Development Command and will provide for preliminary engineering and the construction of a mock-up. Current plans call for a later contract to include manufacture of a limited number of the new jet trainers for test and training evaluation. From there, the jet primary trainer would stand a chance of being ordered in quantity by the hundreds.

Because its Model 318 is a military project, Cessna has refrained from playing up the jet trainer's details and significance. However, Dwane Wallace, president, told his distributors at their recent annual sales meeting that Cessna will probably have a "jet business liner before the competition" can offer jet-powered personal-type aircraft for executive flying.

The Model 318 bought by the Air Force from Cessna is a 2-place, side-by-side trainer with low wing and tricycle gear. Its 5,600-lb. gross weight compares with current light twins on the business-plane market (5,500 lbs. for both the Aero Commander and Beechcraft Twin-Bonanza and about 4,000 to 4,500 lbs. for the new Cessna Business Twin). Span is 33 ft., length 27 ft. 1 in., and height 9 ft. 10 ins.

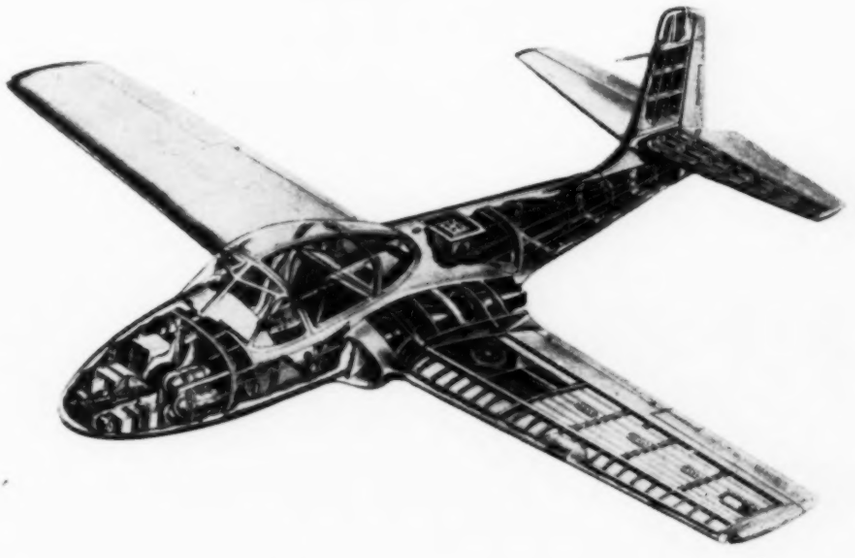
It was designed around two turbojet engines rated at 900 lbs. of thrust each and is expected to have a top speed of about 400 mph. At about 375 mph., one pound of jet thrust is equal to one horsepower. The jets specified by Cessna are to be built by Continental Motors and are centrifugal-flow Marbore 352 models, originally designed in France by the Societe Turbomeca and licensed to Continental some time ago. These engines are faired into the Cessna's wing roots, as shown in the sketches accompanying this article.

In the Air Force design competition, numerous proposed primary jet trainers were of single-engine design. Prop jets were included. Engines proposed other than the Continental Marbore included the Fairchild J-44, a low-thrust Allison jet, and a British Mamba jet which would be built by Curtiss-Wright.

Roominess of side-by-side cockpit is emphasized in this view of Cessna's twin-jet trainer. Note height of horizontal tail surfaces to avoid wake from wing at high speeds.
—(USAF Air Research and Development Command Sketch.)

Top speed of Cessna Model 318 is estimated at 400 mph. Centrifugal-flow Marboro jets built by Continental Motors and rated at 900 lbs. of thrust each are faired into wing roots.
—(USAF Air Research and Development Command Sketch.)

Competition among 8 leading manufacturers was keen, because the development contract may eventually involve very large production orders. Air Force selection of Cessna for the twin-jet project puts this firm out in front on the jet lightplane time table, and will accelerate Continental's advancement into jet engines. Cessna has already been at work on an experimental project in which the small Boeing 502-8 turbine drives a fixed-pitch propeller on the XL-19B Army Bird Dog liaison airplane. The firm has also been under way for some time now with an experimental program dealing with forced-air boundary layer control, this work being conducted in a modified Model 170. Both projects, described last December in FLIGHT MAGAZINE, may be expected to influence future developments at Cessna, which has become the world's largest producer of lightplanes. ★ ★ ★



Cutaway sketch of Cessna trainer shows fuel tanks in wing and nose installation of equipment, including large oxygen supply.

The Cessna Sales Story

Here's the philosophy of the man behind the biggest sales campaign in lightplane history

HAVING catapulted itself into top position as the largest producer of lightplanes and with the most complete line of commercial airplanes ever assembled by any manufacturer, Cessna Aircraft Company has reached high gear in the second year of an intensified sales drive which continues to establish new highs for aircraft marketing. Last year, the drive doubled Cessna's business. This year, Cessna believes it can repeat.

The kick-off occurred in January at the company's annual international sales meeting for distributors and dealers and their wives. Attendance at the meeting passed the 500 mark, with reservations from every distributor and every territory. But unlike former annual meetings, this one was not devoted to a frantic scramble for orders —these were already on the books. Dwane Wallace, Cessna president, and Bob Chatley, sales promotion manager, announced at the meeting that more than 700 new-model Cessnas were on order as of January 13, these representing $8,000,000 in billings. Instead of order-taking, the meeting was devoted totally to sales-help activities, including a live stage production by professionals, effectively emphasizing recommended selling practices.

Practically all of the factory's preliminary selling had been done a couple of months preceding the annual meeting. Distributors were called to the factory individually. For each one the carpet was rolled out, with Wallace and his leaders personally conferring with the distributors. Like many recent Cessna activities, these individual sales conferences bore the mark of showmanship and marketing ingenuity. Instead of a visiting distributor sitting down for impromptu and rambling conversations with the factory staff, he found every second of his factory visit devoted to a prepared schedule. Wallace and his crew employed effectively-prepared poster sets in the conferences, flipping through 160 posters which not only told the Cessna sales story but narrowed that story down to concise, well-chosen words, pictures and charts. When he had finished, each distributor was given a smaller set of these posters in easel form to take home for similar use on his dealers and salesmen. The general idea was to put across Cessna's sales philosophy and to generate enthusiasm for it, while also developing among distributors, dealers and salesmen the fine art of making effective sales presentations to business and professional men who are their chief prospects for airplanes.

Dwane Wallace's ambitious philosophy behind Cessna's tremendous selling program is expressed in the following:

By DWANE WALLACE
President, Cessna Aircraft Company

A YEAR ago, we started out on a new and bigger sales campaign, bigger than any other private plane manufacturer has attempted. The sale of private airplanes has been our primary business always. We were determined to build it. Cessna decided to invest substantial money in (1) a major advertising campaign, (2) an extensive line-up of new sales tools, (3) a new direct-mail selling program, (4) an active publicity and public relations program, and (5) a program to strengthen our distributor-dealer organization — by helping our distributors strengthen their organization.

We provided a new sales management system to help distributors get more efficient work from their salesmen; we appointed two new divisional sales managers and 8 additional regional sales managers to provide closer contact, greater cooperation between the field and the factory; and we held not one but two national sales meetings to keep you posted on plans.

We concentrated all our effort on the business airplane market.

Now let's look at 1952 and see what happened. It was a good year—the biggest year in Cessna history. Cessna sales more than doubled. The 170 became America's largest-selling business and personal airplane and Cessna became the largest dollar producer of business and personal airplanes. And most of our distributors made good profits—Cessna distributors and dealers shared over $3,866,000 in commissions on new planes and spare parts during 1952.

Now, we are determined to make 1953 the golden year of aviation—the year when the business of selling Cessna airplanes really comes of age. When a distributor's company and our company sign the 1953 Cessna franchise, we become partners in business together. This franchise is valuable. Last year it was worth an average of $60,000 and as much as $250,000 in gross sales commissions on new Cessna products. It can become much more valuable.

The year 1952 proved there is a tremendous market and a tremendous need for Cessna airplanes in business. There are literally hundreds of unknown prospects—good prospects—right in each territory. These include: big men in big business—company of-

Confident of greater sales expansion in 1953, Dwane Wallace is shown here at the controls of his new Model 180. That's his top distributor at left—Larry Hunt of Air-Oasis, Fresno, Calif., who sold over $1,000,000 worth of Cessnas in 1952.

Cessna's New 200-mph. Twin

First pictures of the new 5-place, 200-mph. twin-engine Model 310 Cessna reveal some of its interesting features. Wing-tip fuel tanks, first on any production-model lightplane, eliminate tanks inside wing. They are said to effectively reduce span and wing weight. Very flat nacelles house the new 225-hp. Continental O-470 engines. Main gear folds into wing. Note jet-thrust exhaust augmentor tubes, which eliminate cowl flaps and improve cooling. Radio antenna installations are buried, vertical fin's leading edge, tail cone and fuselage nose being used to house them. Two have been built. One will make extensive cross-country flights during coming months of testing. Deliveries begin early in 1954. No price or other details have been announced.

—(FLIGHT MAGAZINE photo above, Cessna photo below.)

Cessna Celebrates the "Golden Year of Flying" With Its

Greatest Achievement in A

A STATEMENT FROM DWANE L. WALLACE

(PRESIDENT, CESSNA AIRCRAFT CO.)

About a Fast, Modern, All-Metal Airplane—Priced for Small Businesses as well as Large.

"Cessna's history extends through forty-two of flying's fifty years. And through it all, we have had just one dream . . . one aim . . .

"*. . . to make flying so safe—so easy—so comfortable and convenient that the business airplane would become as useful and accepted as the business automobile.*

"We've made great progress in this. Today, the Cessna 170 is America's largest-selling personal and company airplane and Cessna 170 and 190 Series airplanes are being used by thousands of ordinary

busi
profi

"No
with
the

"Wh
I'm
thre

"Fir

ALL-NEW SILHOUETTE—from the spinner on nose to the new "square" tail design which was adapted from Jet aircraft. This tail assembly increases speed by eliminating trim tabs and reducing "drag." One of the secrets of the "Golden Year" 180's speed and fine flight characteristics is its exceptional aerodynamic cleanliness!

CONTROLLABLE ALL-METAL, CONSTANT-SPEED PROPELLER . . . 225 h. p. Continental engine—help give this plane a cruising speed of well over 150 m. p. h. . . . a range of 750 miles.

LUXU
upho
ing.
comf

New "Golden Year" Cessna 180

Airplanes for Business!

businessmen—not as playthings—but as practical, profitable, everyday business tools.

"Now—for flying's 50th Anniversary—we are ready with the greatest business airplane of them all . . . the new "Golden Year" Cessna 180!

"While I've been proud of other Cessna airplanes—I'm so proud of this one that I want to emphasize three things about it personally.

"First—SPEED! We have achieved in a relatively low-priced airplane a cruising speed of OVER 150 M.P.H.

"Second—PRICE! The new 180 sells for $12,950 . . . close to ONE-THIRD LESS than any other make of airplane in the over 150 m.p.h. class!

"And third—LANDING, TAKE-OFF AND FLYING CHARACTERISTICS! They are outstanding. It's the finest engineered piece of flying equipment ever rolled out of the door here at Cessna. Easy to fly and to operate out of large fields and small."

CESSNA "PARA-LIFT" FLAPS—reduce landing speeds a good 10%—shorten take-offs. Make small field landings safe and practical. And Cessna's famous Safety Landing Gear smooths out rough fields.

LUXURIOUS CABIN with lots of room for four. Beautiful upholstery. Smart instrument panel with controlled lighting. Efficient heating and ventilating system — for perfect comfort at all altitudes, in all seasons.

Also See

THE "GOLDEN YEAR" CESSNA 170—America's largest-selling private plane made new and better than ever. Lowest-priced all-metal, 4-place plane on the market . . . by several thousand dollars.

THE CESSNA 190 SERIES; Luxurious 4-5 place executive planes. America's greatest bargains in business transportation.

Look in the Classified Telephone book for the name of your nearest Cessna dealer . . . or write:

CESSNA AIRCRAFT COMPANY
DEPT. FM-2,
WICHITA, KANSAS

Over 150 M.P.H. Cruising Speed

ficers in big corporations; little men in big business—branch managers, sales managers, department managers, salesmen, engineers and dozens of others; big men in little business—real estate operators, contractors, small manufacturers, manufacturers' agents (hundreds of occupations fall in this classification); and, of course, there's the farmer businessman—one of our best prospects.

It's a market that's hardly been touched, much less exploited fully. Only a few of the businessmen in this country have ever been contacted concerning the use of company-owned airplanes. If all of the businessmen in each territory knew what an airplane could do for them, the distributor would have more business and more profits than he would know what to do with. But an airplane is not like an automobile. Few prospects have a chance to see it in action as a business tool, to learn for themselves what it will do. You have to go to them and show them what Cessna air transportation can do for them. The market is unquestionably there, if we are willing to really work it. But if we step up the momentum we got under way in 1952, the job will become easier. For the more business planes we get into active use, the more people will be exposed to the advantages of business flying and the less resistance and false notions you will meet.

The market and the need are there and Cessna distributors have the product line that meets that need better than any other line of airplanes in the world—a line with which Cessna blankets the entire business plane market from $8,450 up to and including a new twin-engine business-liner. These are the finest planes in our history, the finest dollar values. These are our new Golden Year Model 170 at $8,450, our brand-new, high-performance, easy-to-operate Model 180 at $12,950 and which will cruise at over 150 mph., our great Model 190 series at prices from $15,795 to $23,500 for airline-type comfort and performance, and our new twin-engine, very fast Model 310 which will be ready for delivery early in 1954 at a price to be announced.

No other distributor organization will have so many opportunities to sell. No other can fit the needs and the pocketbooks of so many types of businessmen so well. We have the market—it's virtually unlimited. We have the product—the finest planes in the widest variety at the best prices. But unless the distributors supply one missing ingredient, they can't begin to take full advantage of opportunities as distributors. To go with all this, we must have a powerful working sales program, and in this, the key responsibility is the distributor's, for he is the man in charge of the men on the firing line. He must direct the activities that actually bring in the signed orders. We can and will help, but the job is his.

The first step in any sales program is to create desire. In this we are giving powerful help, with an advertising program which is bigger and will reach more businessmen than the one which worked so well in 1952—in 1953, Cessna will spend more for national advertising than in any postwar year. Full-page Cessna ads in general news magazines will make almost 28 million advertising sales calls in 1953 for our distributors. Cessna ads in farm publications will make almost 8 million calls in high-income farm homes. Leading aviation magazines will carry Cessna ads which will make 3,400,000 sales calls on people already interested in flying. Each distributor territory gets the benefit of Cessna's national advertising program, an investment during 1953 of over a quarter of a million dollars.

We don't expect to sell airplanes direct from these ads. Nor is our primary concern to get inquiries which lead directly to sales (although we did receive 7,200 inquiries last year). Our primary aim is to make successful sales calls easier for our distributors and their dealers and salesmen—by creating desire, by overcoming resistance, by proving that business flying is the profitable and accepted method of business transportation, by pre-selling the best prospects on the idea of owning company planes.

Only one man can sell an airplane—the salesman who locates the prospect, calls on him, demonstrates the product, and then sells. More calls by good men mean more sales. The man who takes our story of better business transportation to businessmen who have use for transportation is selling high-dollar-value merchandise. He is talking to businessmen about their business and an important business investment. Obviously he must be a high-calibre man.

If we are to make the most of our market, we must think in terms of people who can sell important businessmen important business tools. Any other kind of salesman can ruin sales. We must think of men capable of making big money selling airplanes. For the more money they make, the more money our distributors make. It is vital that distributors recruit top sales people by selling them on the tremendous sales potential of business flying and on the importance of getting in on the ground floor of a business which has an unlimited future and is really beginning to roll.

Where to get such men? First, look around. You surely know good men, capable men, in jobs which don't offer half the future of selling business flying. Second, ask your friends. They may know men who are looking for just such an opportunity—if they knew what an opportunity the sale of business planes offers. And above all, wherever you go, preach the future of business flying and the sales opportunities it offers. We have provided our distributors with an excellent folder, 'Finding a Good Salesman.' It tells where to find them, what to do after you've found them, how to interview them. Good salesmen are the best business investment a distrib-

(Continued on page 34)

Cessna's Top Distributors Cited

TWO groups of ten distributors each were cited by Cessna Aircraft at its annual meeting for leading in sales.

The "Top Ten" group, in order, are: 1. Air-Oasis Co., Fresno, Calif.; 2. Yingling Aircraft, Wichita, Kans.; 3. Walston Aviation, East Alton, Ill.; 4. Mid-States Aviation, Northbrook, Ill.; 5. R. P. Bowman & Co., Oakland, Calif.; 6. Hair Flying Service, Baton Rouge, La.; 7. Cruse Aviation, Houston, Tex.; 8. Aviation, Inc., Tulsa, Okla.; 9. Clinton Aviation, Denver, Colo., and 10. Jennings Bros. Air Service, Hillsgrove, R. I.

Topping the "Plus Club" were these: 1. Cannon Aircraft Sales, Charlotte, N. C.; 2. Laurentide Aviation, Montreal, Canada; 3. Foothills Aviation, Calgary, Canada; 4. Servicio Aereo, Chihuahua, Mexico; 5. John P. Mifflin, Spokane; 6. Dixie Air, Tuscaloosa, Ala.; 7. Lysdale Flying Service, S. St. Paul, Minn.; 8. Lane Aviation, Columbus, Ohio; 9. Lynch Flying Service, Billings, Mont., and 10. Flugzeughandels AG, Zurich, Switzerland.

In a special contest for Model 190 sales, three top salesmen and their wives received paid vacation air trips from Cessna. First was Joe McMaster of Aerial Surveys of Pittsburgh. He got 14 days in London and Paris. Second was Gene Bright of Walston Aviation, East Alton, Ill., with 10 days in Jamaica. Third was Norman Hoffman of West Texas Flying Service, Midland, Texas, with 7 days in Jamaica. ★ ★ ★

Little things count . . . **in a big way** . . . when REED does the job! Every detail is given specialized attention—attention that assures the most efficient performance of your airplane under all conditions.

Whether your need is a major overhaul or an oil check, the J. D. Reed Company is prepared to give you the finest service available and a quality line of products, parts and accessories. In addition, the J. D. Reed Company is exceptionally well equipped and has the facilities to handle the most complex engineering problems.

No matter what your requirements may be—large or small —you can confidently rely on REED to handle each job to your complete satisfaction.

J.D. REED CO., Inc.
SALES SERVICE
Beechcraft
DISTRIBUTOR
MUNICIPAL AIRPORT
HOUSTON, TEXAS

to Simplify Navigation

. . . Relieve Flight Fatigue

. . . Reduce Pilot Error

The LEAR L-2 AUTOPILOT does the flying for you—performs any normal maneuver in turbulent or still air—automatically and with unequaled precision.

You will also want to investigate the AUTOMATIC ALTITUDE CONTROLLER, which maintains your airplane automatically at a constant pressure altitude, and the AUTOMATIC APPROACH COUPLER for blind landings which will bring your airplane down to within a few feet of the runway without requiring a human hand at the controls.

Purchasers of the Lear L-2 AUTOPILOT can add the Automatic Altitude Controller and Automatic Approach Coupler at any time after the installation of the L-2 Autopilot. Adaptable to all planes.

Aircraftsmen, Inc., a pioneer distributor of Lear products, staffed by factory-trained specialists is prepared to install the Lear L-2 Autopilot in any aircraft. Our long specialized experience is your guarantee of the finest installation in minimum time at flat rates.

Aircraftsmen Inc.

Will Rogers Field **MElrose 8-6338** **Oklahoma City, Okla.**

NEW CONTINENTALS

(Continued from page 19)

signed by Continental to attain minimum size, is mounted at right rear and at right angles to the main axis of the engine. It incorporates overrunning and over-loading features, has a torque ratio of 48 to 1 and provides push-button starting.

This repositioning of components and accessories makes possible a minimum over-all height of only 19.62 inches and a minimum over-all length of only 36.03 inches, depending on carburetor location. The typical carburetor installation on the bottom gives an over-all height of 25.75 inches, with no length increase. With carburetor at the rear, over-all length becomes 43.31 inches with no increase in height.

In this over-all length picture, an important factor is the new propeller mount. Continental is pioneering a 5⅜-in. metal flange, replacing the wider and bulkier flange required by wood propellers. This new flange is designed for use with constant-speed metal propellers of simplified design which can be mounted directly on the crankshaft and operated by governor control oil through the shaft. In other words, Continental engineering is thus contributing to propeller progress, and this, too, offers great significance in the improvement of lightplanes.

Engine servicing is simplified by the provision of automotive-type hydraulic valve lifters, in combination with a camshaft of improved design. These lifters permit access to the valve mechanism without removal of the engine from the plane.

First impact of Continental's new engine series is being made in the introduction of Cessna's new Model 180, a 4-place which offers more than the 150-mph. cruising speed its manufacturer claims. The 180's engine is the Continental O-470-A. A similar engine powers Cessna's new Model 310, a 5-place light twin. The O-470-A is not supercharged. This new Cessna Twin is reportedly exceeding the designer's expectations in initial flight tests. An important factor in its performance is the use of very flat engine nacelles having extremely small frontal area.

More details can be expected from Continental in the near future, with additional engine models being released. New developments by propeller manufacturers can also be expected. The end result is bound to be a new stride forward in several lightplane categories, with higher performance, efficiency and dependability standards than ever. ★ ★ ★

Protect Your Investment*

BONANZA

AERO-COMMANDER

CESSNA 170

LODESTAR

CESSNA 195

NAVION

PIPER TRI-PACER

DOVE

BEECH L-23

DON'T FLY ALONE

LET THE LEAR L-2 FLY "CO-PILOT"

NEW MODEL 937 DE LUXE L-2 CONTROLLER

Thousands of hours in the many hundreds of executive, military and professional planes prove that you don't have to "go it alone" when the *all-weather* Learpilot is backing you up. This multi-arm "co-pilot" does the flying for you—freeing you to concentrate on the complicated problems of navigation, IFR procedure, radio communication, bad weather, etc., etc., etc.... Learpilots are compact, light-weight—quality built throughout—can be installed at low cost.

Automatic Approach Coupler—when added to your Lear L-2 system automatically performs the very exacting task of locking your plane to the ILS beam, guiding it with precision right to the runway.

New Deluxe Controller—features a new automatic safety device that prevents sudden nose-down or nose-up flight attitude when the autopilot is engaged. This Model 937 controller is used with all Lear automatic approach coupler installations and is available for any Lear L-2 system.

Automatic Altitude Controller—a Lear L-2 accessory that automatically maintains your plane at a constant pressure altitude. Flip the switch to "ON" when you reach your desired altitude and that's where you stay!

See Your Lear Distributor—*he will be pleased to demonstrate the Lear L-2 autopilot to you—call him today. If you operate heavy, multi-engine planes on up through the DC-6 class, write to the factory for a Lear L-5 autopilot demonstration. An early appointment can be arranged.*

**** Nearly a thousand Lear L-2 autopilots are now "co-piloting" more than 21 different types of Executive planes ranging from Pipers to DC-3s. (Write for free illustrated booklet.)***

Lear AIRCRAFT RADIO PRODUCTS
COAST TO COAST
Sales and Service

LEAR INC. LEARCAL DIVISION • 11916 W. PICO BLVD., LOS ANGELES 64, CALIF.

The Name Men Fly By...**AUTOMATICALLY!**

Grand Rapids Division, Grand Rapids, Michigan; Romec Division, Elyria, Ohio
Lear International Export Corporation • 9 East 45th Street, New York 17, N.Y.

Main hangar and shops of Aircraftsmen, Inc., are at Will Rogers Municipal Airport in Oklahoma City. It recently opened a new hangar at nearby Tulakes Municipal Airport in an expansion move. Dutch Dutton, for many years with Cessna, is Aircraftsmen's sales manager.

Custom Products Boost Business

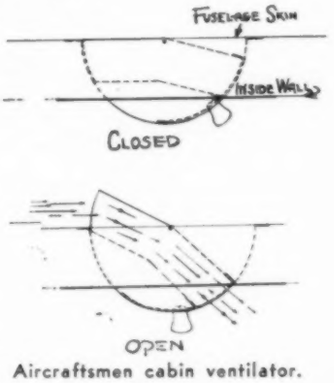
DIVERSIFICATION has helped to boost many aircraft sales and service operators to success. In the process, the more enterprising operators have frequently developed services, products and aircraft improvements which have contributed to commercial aviation progress. An outstanding example of recent contributions in this line is the case of Norman Blake and associates, who are known as "Aircraftsmen, Inc.," the Beechcraft distributorship at Oklahoma City.

Nationwide prominence, as well as business profits, has been won by Blake's numerous custom accessories, marketed chiefly through other Beechcraft distributors. His "breather oil separator" for example, keeps heavily-utilized 4-place airplanes clean. Without it, cooling air from the engine carries a very fine, unseen "mist" which deposits, after long hours of flying, a slight film of greasiness on the belly of the plane behind the engine compartment. This film collects dust. Blake's solution was to install a breather-collector, as pictured below. The fine mist is collected in this and condenses, dripping back into the engine oil system. Thus loss of oil through the breather is prevented and belly clean-ups from mist collection are eliminated. Some 400 of the units have been sold during the last three years.

Aircraftsmen also developed an oil radiator shutter for use on Bonanzas. It is controlled from the cockpit, to govern the volume of cooling air passing through the radiator. These are used mostly in colder areas of the country and with them, the pilot can control oil temperatures effectively for better and more efficient engine lubrication. Over 200 of these shutters are now in use.

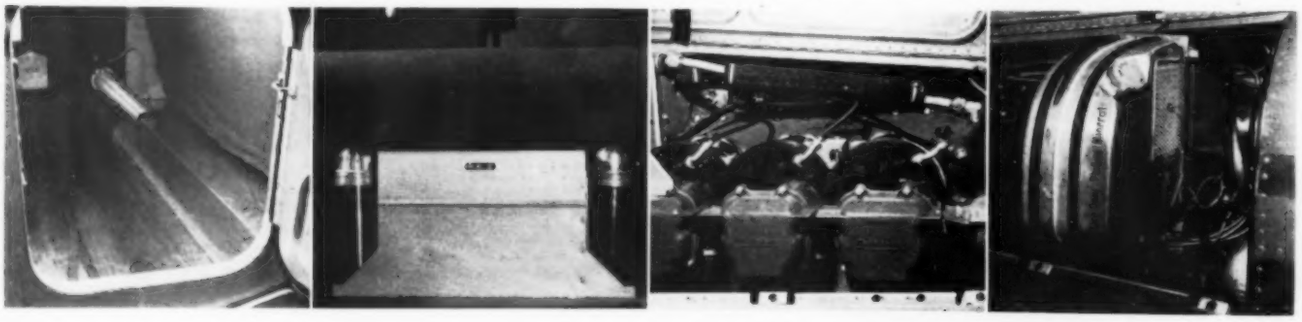
The Oklahoma City operator has also marketed about 400 10-gal. auxiliary fuel tanks for Bonanzas. These are installed in the baggage compartment, partially under the rear seat. Larger auxiliary tanks are available, but take up more baggage compartment space. With the Aircraftsmen tank, very little space is lost but a 1-hour fuel reserve is supplied, thus giving the Bonanza a full 5-hr. range. About 400 of these are in use.

All of Aircraftsmen's accessories are CAA-approved. They include a handy map case and thermos rack, as pictured below, for installation out of the way just in front of the front seat, tilting forward for easy access, and excellent little cabin ventilators which are highly-finished to match the cabin interior. ★ ★ ★



Aircraftsmen cabin ventilator.

Aircraftsmen's Bonanza auxiliary fuel tank, map-case-thermos-rack, breather oil separator and oil radiator shutter are shown below.



Seventy-five hundred pairs of TEMCO sleeves are being rolled up for the big job ahead in 1953.

TEMCO is under way on the biggest project of its history as prime contractor for a substantial quantity of McDonnell F3H DEMON jet fighters for the U. S. Navy.

TEMCO made other great strides in 1952 . . . It completed a major installation at Greenville, Texas, for its vast overhaul-modification work on multi-engine aircraft. It further expanded its Dallas manufacturing facilities to provide for a new all-time high production level without loss of time on its Boeing, Lockheed, Douglas and Martin sub-contracts. Its own military trainer, the YT35 BUCKAROO, currently under consideration by the U. S. Air Force, received additional interest from foreign governments. Its subsidiary plant at Garland, Texas, continued to deliver on schedule under sub-contracts from Consolidated, Beech and others.

In the same period, TEMCO design engineers were busy on new projects of even greater scope for America's air defense. In 1952 TEMCO became TEMCO AIRCRAFT CORPORATION . . . 1953 will add new meaning to the name.

TEMCO
AIRCRAFT CORPORATION
DALLAS, TEXAS

CESSNA SALES

(Continued from page 28)

utor can make. It's worth looking hard to find such men.

We believe the absolute minimum for Cessna distributors who are to take advantage of opportunity is two full-time salesmen, preparing for and making at least 4 planned, off-airport retail sales calls per day. And the absolute minimum for dealers is 1 man making at least 1 off-airport retail sales call each day.

Sales efforts must be efficiently planned and carefully organized. Adequate written records must be kept, so you can see where you have been and where you are going. That is the reason for the Cessna Sales Management System, which calls for writing reports on each sales call. One writing produces four copies—one for the distributor, one for the dealer, one for the retail salesman and one for Cessna.

Scheduling and reporting on sales calls doesn't make work. It actually makes easier the doing of work that should be done for better management of a sales business.

We are providing distributors with many tried and proven sales tools. For example, we have prepared nine new direct-mail folders answering questions most prospects have in mind. These are imprinted for distributors and mailed automatically each month by Cessna, with each distributor furnishing a minimum mailing list of 250 names. We have purchased on a national basis in cities of over 50,000 population standard Cessna listings in classified telephone directory advertising and will share up to 50 per cent of the cost with distributors. This ties in with our national advertising which directs prospects to this section of the telephone book if he desires further information. We are continuing and enlarging our "case history book" for use by distributors in citing actual examples of Cessna airplane usefulness in 180 case histories. We are furnishing distributors with thoroughly-tested literature and are making available at cost many other sales tools, such as lapel pins, glossy photographs of our airplanes, Viewmaster picture slides, complete display books and tinted murals, and new port-a-view picture machines.

We are improving our customer service through our distributors. This bears great emphasis. The service a customer receives often determines his whole attitude toward a product, the distributor who sold it to him and the company which made it. The distributor's service department is his best contact with old customers who will eventually buy new planes. As business flying expands, a good service department can carry more and more of the total overhead. In our business, it is of utmost importance that our product be safe and operable at all times. That's why Cessna insists that distributors maintain a capable service department, that they work with us in perfecting our flat-rate system of charges for labor, that they keep on hand an adequate supply of genuine Cessna parts and agree not to sell for use on Cessna airplanes anything but approved parts and equipment.

We consider service so important that, in 1953, we will have two service representatives traveling the country constantly—ready to help our distributors develop their service and parts departments.

Cessna is issuing a completely new owner service policy—something new in the airplane business and something which this business has needed. This service policy entitles the owner of a new Cessna to "new plane" and "100-hr. inspections" without cost. This policy and procedure is designed to promote owner goodwill by making free services easily available to him anywhere there is a Cessna distributor, set up a pattern for the return of the owner to Cessna distributors or dealers for his continued service requirements, and impress the owner with the nationwide reliability and business-like methods of the Cessna organization.

With the progress we made in 1952 as a background, with our new planes and with the program we have outlined, we think we offer something that any man with ambition and faith in the airplane sales business should get steamed up about. It is vital that everyone connected with our program be really steamed up—ready to go out and put the airplane business over the top; ready to make the calls that must be made, and ready to make 1953 aviation's golden year. We are convinced that the market for business airplanes has hardly been scratched, that the time is ripe to really make something out of this business. ★★★

FIRST PICTURE OF McCAULEY'S NEW CONSTANT-SPEED, CONTROLLABLE-PITCH MET-L-MATIC PROPELLER was snapped at Cessna Factory where it was displayed on a Model 180, for which it is being developed as optional equipment (Model 180 has constant-speed, controllable-pitch Hartzell as standard equipment). Left to right in picture are John F. Haines, chief engineer; Sid Gamsu, general manager, and Walt Powell, sales manager, all of McCauley Propellers. The new Met-L-Matic has been under development for a year, with $150,000 invested in the project. Hydraulically operated for 25 degrees of pitch change, it uses oil to increase pitch and the centrifugal twisting moment of the blades to decrease pitch and has a Woodward constant-speed governor. Only minor changes are necessary to make it a full-feathering prop for twin-engine planes. The prop's major feature is its completely enclosed hub mechanism. Gamsu said it will be pre-set, pre-lubricated and then sealed upon installation, after which it shouldn't require servicing until the engine is overhauled. The hub will probably be adapted for a wide-range of powerplants, including 145-hp. Continentals used on Cessna Model 170's. The prop shown above was not flown, being temporarily mounted for ground display only. —(FLIGHT MAGAZINE Photo.)

NEW!

CERAMETALLIC Brake Lining

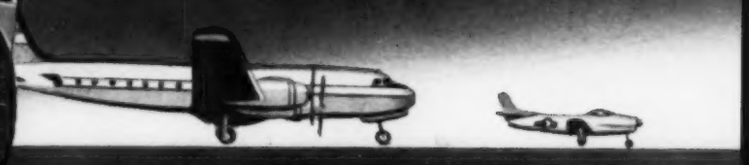
Gives

- Fifty per cent greater brake capacity
- Five times longer lining life
- Delining and relining in half the time

The ever increasing landing speeds and greater gross weights of airplanes produce extremely high brake temperatures and rapid lining wear that call for a new approach to the problem of heat resistance and wear resistance in brake linings.

Bendix engineers have produced an entirely new type of brake lining that not only resists high temperatures far above the working limits of any conventional friction material, but that actually wears five to seven times longer.

This remarkable lining, known as CERAMETALLIC brake lining, is fundamentally different in that it contains no resin or other organic substance; the base is a ceramic material combined with other ingredients to give long wear and good friction properties.



IMPORTANT ADVANTAGES

Increased brake capacity . . . no fading . . . no grabbing . . . maintains original friction throughout lining life . . . runs cooler because of better heat conductivity and better ventilation . . . less dust, better scavenging . . . no run-in period needed . . . wears five to seven times longer . . . fewer brake adjustments . . . less wear on brake rotors . . . easier, faster delining and relining.

Send for folder containing complete details.

LEADER IN LANDING GEAR

FIRST IN FUEL METERING

Bendix Products Division

BENDIX • PRODUCTS DIVISION • SOUTH BEND

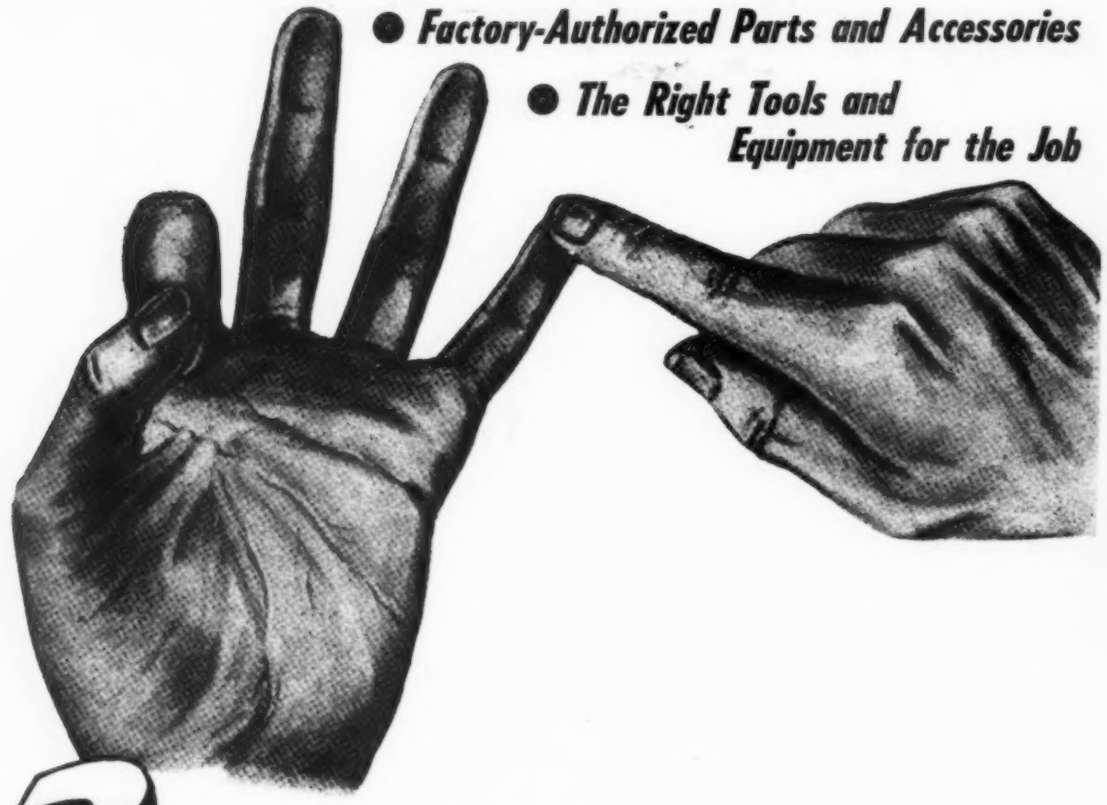
AVIATION CORPORATION

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

● *Technical Know-How and Experience*

● *Factory-Authorized Parts and Accessories*

● *The Right Tools and Equipment for the Job*



3 things you can count on at Certified Beechcraft Service Stations

To obtain the best service for your Beechcraft and for prompt attention to maintenance and overhaul requirements, visit the Certified Beechcraft Service Stations listed.

Aircraftsmen, Inc.
Will Rogers Field
Oklahoma City, Oklahoma

Alamo Aviation, Inc.
Municipal Airport
San Antonio, Texas

Anderson Air Activities
General Mitchell Field
Milwaukee, Wisc.

Truax Field
Madison, Wisc.

Atlantic Aviation Corp.
Teterboro Airport
(25 minutes from Times Square)
Teterboro, New Jersey
also
Logan Airport
East Boston, Mass.

Atlantic Aviation Service
New Castle County Airport
Wilmington, Delaware

Butler Co., Aviation Division
Municipal Airport
Chicago, Ill.

Currey Sanders Aircraft Co., Inc.
Downtown Municipal Airport
Shreveport, La.

Cutter-Carr Flying Service, Inc.
West Mesa Airport
Albuquerque, New Mexico

Francis Aviation
Capitol City Airport
Lansing, Michigan

Gray Aircraft Svc. Co., Inc.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

Hunter Flying Service, Inc.
Hunter Field
Cedar Rapids, Iowa

Rod More Aviation Services
Cuddihy Field, P. O. Box 556
Corpus Christi, Texas

Ohio Aviation Company
Dayton Municipal Airport
Vandalia, Ohio

Pacific Aircraft Sales Co.
Oakland Airport
Oakland, California

Roscoe Turner Aeronautical Corp.
Municipal Airport
Indianapolis, Ind.

J. D. Reed Co., Inc.
Municipal Airport
Houston, Texas

Southern Flight Service, Inc.
Douglas Municipal Airport
Charlotte, N. C.

Topeka Aircraft Sales & Service
Municipal Airport
Topeka, Kansas

Tradewind Airport Corp.
Tradewind Airport
Amarillo, Texas

Tulsair Distributors, Inc.
Hangar 5, Municipal Airport
Tulsa, Oklahoma

Wings, Incorporated
Wings Field
Ambler, Pennsylvania
Philadelphia International Airport
Philadelphia, Pennsylvania

The thousand-mile handshake

When a company-owned Beechcraft Executive Transport is available for instant action, you and your key men find time to shake hands with field men, customers, new business prospects *regularly*. For example, you can leave at *your* convenience, cruise in relaxing comfort one thousand miles in less than five hours, tend to business, return that day. Home office work *can't* pile up.

Thousands of executives use this soundproofed Beech "Twin" in just such fashion daily. In *your* business, you could use more *time*. Investigate! Typical costs and operating data on request.

☆ ☆ ☆

Call your Beechcraft distributor or write Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

NEW MODEL BONANZA

(Continued from page 18)

the controls. 4. Let the Bonanza have its way throughout the spiral in the overcast. 5. When again contact, you will be able to level off with gentle pressures, since your speed will be in the range of 75 to 110 mph., and your angle of bank less than 60 degrees.

Although Vern demonstrated this to us in the new D35, he assured us that all Bonanzas, regardless of serial, have the same built-in spiral stability. Like many other fine qualities which led to the delivery of 3,400 Bonanzas, this is another reason why improvements for 1953 were difficult to come by—how can you improve something that's already top-notch?

Release of the new model reaffirms Beechcraft's faith in the business plane's market and usefulness at a time when the factory is hard-pressed by very heavy military aircraft commitments in research, development and production. Beech has a backlog of more than $210,000,000 in military orders covering trainers and transports. The company intends to devote as much as possible of its defense-expanded facilities to continued production of commercial aircraft during 1953.

"Personal and executive airplanes give their owners increased command over time and distance," said Jack Gaty, Beechcraft's vice president and general manager, in emphasizing contributions of the growing fleet of American business planes toward the expansion of defense industries. "Trips that would be impossible to fit into the schedule of busy executives become both practical and profitable if made in modern business planes providing the ultimate degree of speed and mobility. We believe that what helps business cannot fail to help the free nations, and it is our conviction that civil aircraft constitute an invaluable national asset."

Over 125 sales representatives attended the 1953 national distributors meeting conducted by Beech in Wichita in January. Deliveries of the new Bonanza started January 31, with the first 25 new Bonanzas flown away for delivery to customers in 22 states and Switzerland. Current production of Bonanzas is 1 a day.

Gaty said Beech had on hand a firm backlog of orders with deposits for about 60 or more of the new D35 models. This brings to 85 the total number ordered in advance of the first showing, even before the buyers or distributors had any opportunity of seeing the improvements. ★ ★ ★

THE LAST CORSAIR

(Continued from page 21)

down 124 1/2 Jap planes without a loss. Total Corsair action sorties came to 64,051.

During the first 10 months of the war in Korea, Corsairs accounted for 82 per cent of all Marine and Navy close support sorties. Last August, a Corsair shot down a Russian-built MIG-15 jet. But the days of Corsair effectiveness against jet competition became numbered in 1950 when the Navy began replacing them aboard carriers—virtually every carrier had been equipped with Voughts by the end of the Okinawa campaign. ★ ★ ★

Cessna 195 Owners!

West Texas Flying Service, Midland, Texas, can convert your 165 mph. Cessna to 180 mph. through installation of a fresh Zero Major 330 Hp. Jacobs Engine.

Offering a limited number of 330 hp. exchange engines, with remanufactured guarantee, to owners of Cessna 195.

Add the following advantages to your plane

- **Cruising Speed over 180 Mph.**
- **Rate of Climb over 1300 Fpm.**
- **Take-off Distance Reduced.**
- **Reduced Vibration.**
- **Lower Noise Level.**
- **Increased Service Ceiling.**

Installation of 330-hp. Jacobs Engine and conversion CAA Approved.

Cost $3,500 and Your Old 300-hp. Jacobs Engine

Call or Wire Today

WEST TEXAS FLYING SERVICE
Midland Air Park
Midland, Texas **Telephone 3-3191**

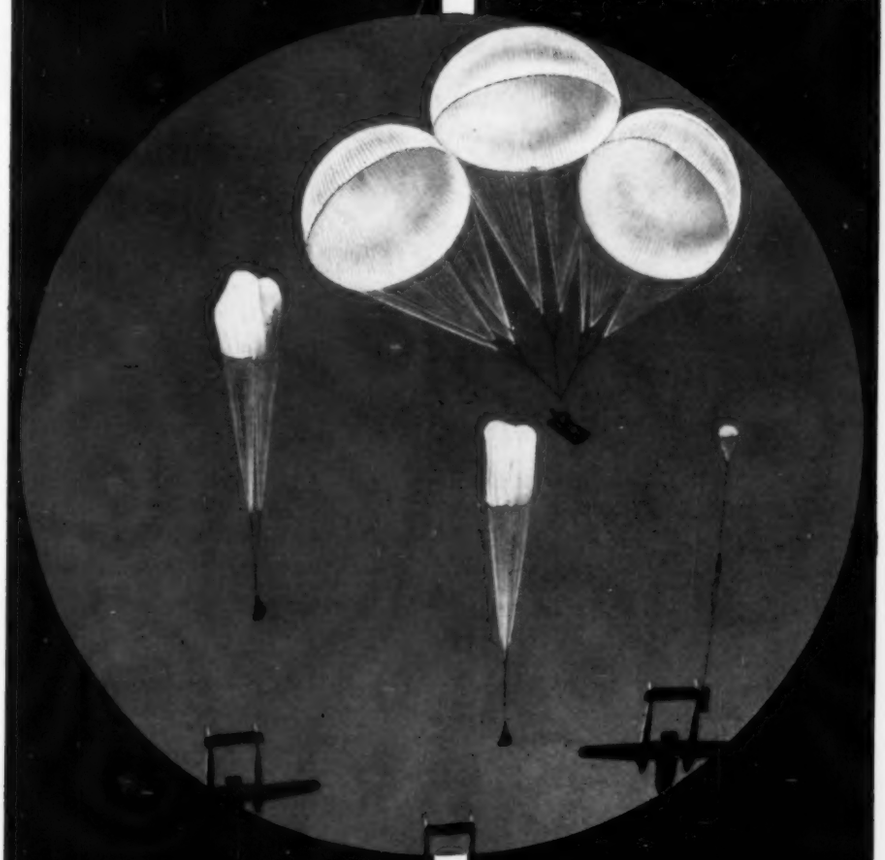
MORE THAN 75 COMMERCIAL HELICOPTER OPERATORS attended the Helicopter Association of America's annual meeting last month at Bell Aircraft's Fort Worth factory. Scenes during the session are shown above. At upper left, Bell Vice President Harvey Gaylord addresses the group. Left to right in the picture at upper right are Carl F. Brady, Economy Pest Control, Yakima, Wash., president; Elynor Rudnick, president of Kern Copters, Inc., Bakersfield, Calif., secretary, and T. H. Reidy, president, Helicopter Air Service, Chicago, treasurer of the association. Operators are shown in bottom photo touring the Bell factory. At right in the hat is James S. Ricklefs, president of Rick Helicopters, Los Angeles.

—(Bell Aircraft Photos.)

non-stop cargo deliveries anywhere anytime by Pioneer Parachutes

Southwest Factory Branch
Love Field
Dallas, Texas

What took days and weeks to deliver only a few short years ago, can now be achieved in hours. From point of dispatch to any spot . . . *anywhere* . . . as fast as a plane can fly . . . cargoes are delivered on time and on target . . . whether it's ammunition and supplies to the Korean front lines or to other areas either inaccessible or too far to reach rapidly by other modes of transportation. Man's ingenuity has developed the plane and the parachute to a new high importance in both peace and war.



Pioneer salutes the aircraft industry, the armed forces and the parachute engineers and research men . . . whose combined experience and devotion to duty has made this great progress possible. Pioneer is proud of the part this company has played in these tremendously important projects.

PIONEER PARACHUTE COMPANY, INC.
MANCHESTER, CONNECTICUT, U. S. A.

CABLE ADDRESS: PIPAR, Manchester, Conn., U. S. A.

Now More Than Ever the Outstanding Aviation Value!

Be sure to see and fly the new beautiful 1953 Tri-Pacer at your Piper dealer or distributor now. The snappy performance, the flying ease, the cabin comfort, and the restful quiet will prove to you that, once again, Piper has set the pace in business airplane development.

Here are just a few reasons why:

- **MORE ROOM and COMFORT and SENSATIONALLY QUIET**
- **MORE BAGGAGE SPACE**
- **NEW BEAUTY and STYLING**
- **135 HORSEPOWER**

• Ask one of the firms listed to demonstrate how one of the Piper models can save you valuable time and money. These firms are prepared to serve all your aircraft requirements.

Arizona
ANDERSON AVIATION COMPANY, INC.
Sky Harbor Airport
Phoenix

Louisiana-Mississippi
LOUISIANA AIRCRAFT
Municipal Airport
Baton Rouge, La.

Oklahoma
SMYER AIRCRAFT SALES & SERVICE
Municipal Airport
Ponca City

Texas
BROWN FLYING SERVICE
Municipal Airport
San Antonio

JACK ROBINSON FLYING SCHOOL
Meacham Field
Fort Worth, Texas

PARKER-HUETT AVIATION COMPANY
White Rock Airport
Dallas

SOUTHWEST AIR RANGERS
Municipal Airport
El Paso, Texas

WICHITA FALLS AIR TRANSPORT COMPANY
Municipal Airport
Wichita Falls

JUST AMONG OURSELVES

(Continued from page 13)

the wind in Washington. We well remember the prediction and it had many, many "ifs" attached. It was one man's opinion. We failed at the time to find any CAA career men in the field or in Washington who agreed with the prediction. Why not bury and forget it like unnumbered scores of wild, miscued predictions which have gone before and been forgotten? Why hold on to this particular one and consider utilitarian civil aviation something literally for the birds just because we won't have a million airplane owners by 1955?

It is a disservice to aviation for the so-called "experts" to liken an airplane to an auto, either in price, costs of operation, production, handling technique or equipment. When will we learn that the two machines are far apart and have no actual basis for any comparison? Airplanes are still more of an engineering proposition than autos, which are more of a production proposition. No factory can "stamp out" efficient airplanes as autos are "stamped out." Even World War II's tremendous output of warplanes was not mass production. It was production by the masses.

If civil aviation is to grow and prosper at a more rapid rate it is vitally important that we start rooting out misleading, half-baked, incompetent and completely unnecessary comment and gross assumptions which have been permitted to grow and grow until in many minds these assumptions are mistaken for fact and truth. This nefarious kind of thinking, even though completely well-meaning, negatively affects aviation planning, aviation facilities and even regulations. It creates almost insurmountable sales resistance in the public mind and slows down the whole process of aviation development. It even creates false hopes in many people's minds who are led to believe "the government will do something and someday there'll be a plane in every garage along with that chicken in every pot." Many good used planes are not being sold although they are listed at almost give-a-way prices. Many prospects could afford them and find use for them until they could afford something better. The doors of conventional finance at reasonable interest rates are shut to the lightplane industry, all because of erroneous thinking in banking circles.

We believe that a realistic, honest and concerted effort to get accurate facts and figures about U. S. civil aviation to the American public is long overdue.

Now More Than Ever the Outstanding Aviation Value!

The New 1953 PIPER TRI-PACER

With
SAFETY PROVEN TRICYCLE GEAR and SIMPLIFIED CONTROLS

There is no question of the preference for tricycle gear. Every modern airliner, every new jet has this modern gear. Only Piper offers it in the medium-priced field. With exclusive Hydrasorb shock absorbing system, the new 1953 Tri-Pacer takes the skill out of landings and take-offs. And the exclusive inter-connected controls mean even greater flying ease. Just steer it with wheel alone like your car. For special purpose flying, Piper also offers the Pacer with three-point gear.

Well over two-mile-a-minute cruising speed, tricycle landing gear for safer, easier landings, remarkable load-carrying ability—and operating costs far lower than for any other four-place plane. That's what you get in the new 1953 Piper Tri-Pacer—the best combination of the four things you want most in your own airplane—performance, safety, utility and economy.

Be sure to see and fly the new beautiful 1953 Tri-Pacer at your Piper distributor's now. The snappy performance, the flying ease, the cabin comfort, and the restful quiet will prove to you that, once again, Piper has set the pace in business airplane development. Here are just a few reasons why:

MORE ROOM and COMFORT and SENSATIONALLY QUIET. More length, more width give lots of room for four large passengers. New, quiet-sealed windows, plus added sound-proofing give really quiet flight. New, handsome two-tone styling sets the pace in beautiful interiors, too!

MORE BAGGAGE SPACE. There's room for all the baggage shown below in the greatly enlarged baggage compartment loaded through new, large outside door. Spacious hat shelf behind rear seat is another fine new feature.

NEW BEAUTY and STYLING. New two-tone paint design in optional colors gives the new 1953 Tri-Pacer a smart, distinguished appearance you can't beat for beauty.

135 HORSEPOWER. Finest engine ever developed for business flying—that's the verdict you get everywhere on the superbly smooth Lycoming engine. Rated at 135 horsepower, the dependable Lycoming is one reason why the Tri-Pacer is far more economical to operate than any comparable plane.

FREE—this brand-new full-color brochure on the Tri-Pacer and Pacer with three-point gear. Send today for your copy.

PIPER AIRCRAFT CORPORATION, DEPT. F-2
Lock Haven, Pa.

I am interested in a plane for ☐ business ☐ farm ☐ personal use. Please send the new brochure on the 1953 Tri-Pacer and Pacer.

Name_____

Address_____

City_____ State_____

More People Have Bought Pipers Than Any Other Plane in the World.

Chief Pilot Owen at the controls of the Lockheed Lodestar owned by the Smith-Douglass Company, leading makers of commercial fertilizers. The firm also has a Beechcraft B-35.

Ask the men with the most experience . . .

ask **Clarence B. Owen, Jr.**

Chief Pilot, Smith-Douglass Co., Inc., Norfolk, Va.

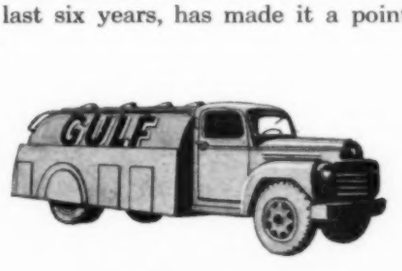
"With nine factories—scattered from Virginia and North Carolina to Louisiana, and up into Illinois—our company keeps its two planes mighty busy," says Mr. Owen, a pilot who's logged 6,500 hours in the last 14 years. "And *everywhere* we fly, we know we can count on Gulf for the same fine quality products and the same fine service. That consistent excellence is one of the big reasons why our company, for the last six years, has made it a point to 'Go Gulf.'"

Gulf Aircraft Engine Oil, Series-R

For radial engines, or where a detergent oil is not desired. Approved by Pratt & Whitney and other radial engine manufacturers for all types of service. Retards sludge and carbon formation and retains its body at high operating temperatures.

Gulfpride Aviation Oil, Series-D

For horizontally opposed and Ranger in-line engines. Minimizes ring- and valve-sticking, oil consumption, oil-screen clogging and plug fouling. Users of this great oil have actually increased periods between engine overhauls as much as 100%.



Gulf Aviation Gasoline

Always "refinery-clean," because Gulf Aviation Gasoline dispensing equipment is equipped with advanced Micronic Filters.

To step up performance, and cut operating costs . . . GO GULF!

Gulf Oil Corporation • Gulf Refining Company

GULF
AVIATION PRODUCTS

Airmen's Calendar

Feb. 12-13—National Aviation Education Council's Annual Meeting, Atlantic City, N. J.

Feb. 22-24—2nd Agricultural Aviation Conference, Texas A. & M. College, College Station, Texas.

Feb. 16-17—Iowa Aviation Trades Association's Annual Convention, Des Moines.

Feb. 17-18—Wisconsin Aviation Trades Association's Annual Convention.

Feb. 19-20—Minnesota Airport Operators Association's Annual Convention, Nicolet Hotel, Minneapolis.

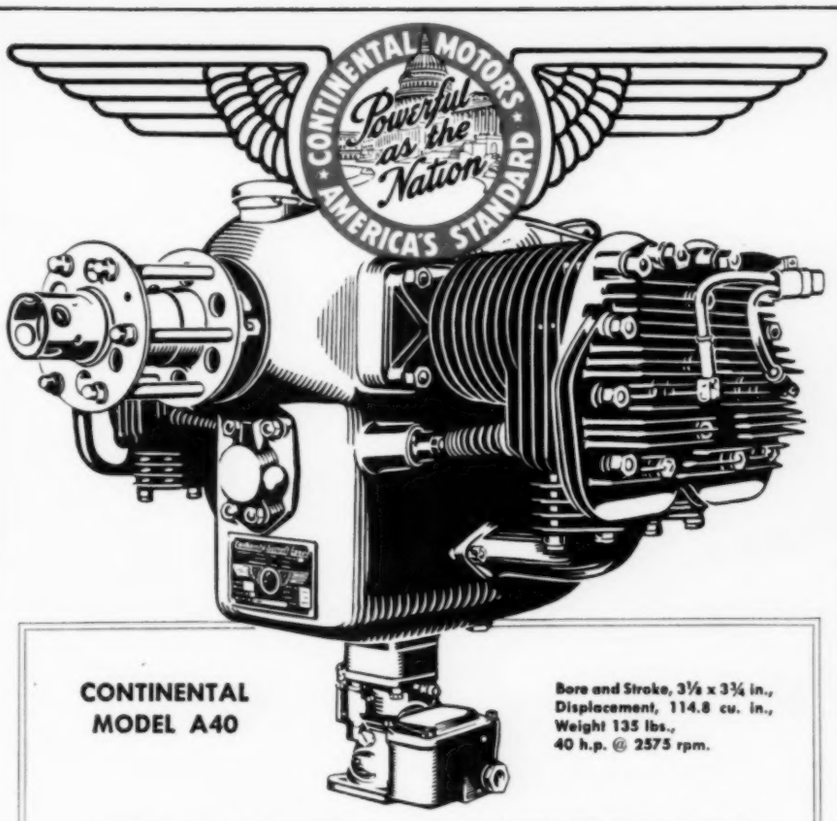
Mar. 11-13—Joint Indiana-Ohio Agricultural Aviation Conference, Purdue University, West Lafayette, Ind.

Mar. 23-28—Aviation's 50th Anniversary Congress of Civil Aviation, with Annual Meetings of American Association of Airport Executives and Airport Operators Council; Ross C. Roach, Convention Manager, P. O. Box 315, Kansas City, Mo.

Until this is done, the industry will continue to be damned by faint praise, sold short by well-meaning people who aren't up on their facts and completely misunderstood by thousands of people whose lives would be more productive, profitable and enjoyable by the adaptation of airplanes to their respective enterprises.

Call it a crusade if you wish. But it must start—within the framework of U. S. civil aviation and the government agencies involved in aeronautical matters. If we don't take the bull by the horns civil aviation and its present and future potential will continue to be sold down the river, within our own family!

Meanwhile the lightplane industry is buzzing with activity, filling a healthy backlog of orders, constantly engineering new improvements in the basic airframes, the engines, propellers, electronic equipment and every other item that spells increased utilization at less cost and more comfort. The distribution outlets are gradually becoming sales-minded businessmen rather than "fixed-base operators" sitting around on their fixed-bases. Our manufacturers are cautiously optimistic, without any halucinations about selling airplanes to people who don't need them. In fact business is excellent with them. It is so good they are ignoring one of the greatest danger signs along the road to greater progress and wider public acceptance. We are firmly convinced erroneous information can be replaced with factual information if the industry will only set itself to the task. Other industries are doing it. We can do the same. ★ ★ ★



CONTINENTAL MODEL A40

Bore and Stroke, 3⅛ x 3¾ in., Displacement, 114.8 cu. in., Weight 135 lbs., 40 h.p. @ 2575 rpm.

• THE FAMOUS CONTINENTAL A40 •

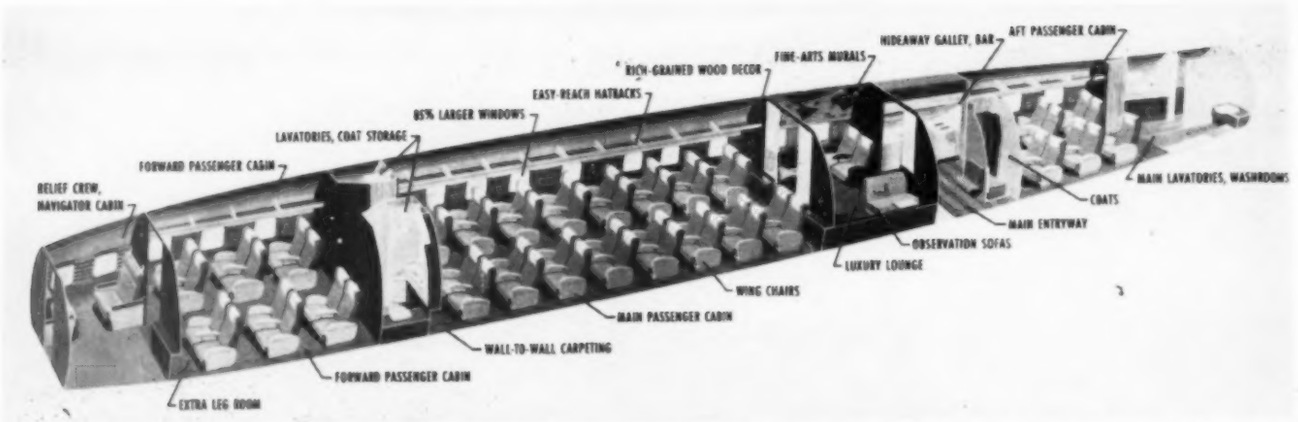
IT HELPED TO PUT THE WORLD ON WINGS

Nineteen fifty-three, golden anniversary of Kitty Hawk, is a fitting time to take note of factors which have furthered man's conquest of the air. . . . High in any list of such factors, of course, is Continental Motors' introduction of the famous A40 power plant, pioneer precision-built aircraft engine of moderate price. It is doubtful if any other single development since the Wright Brothers' first powered flight has done so much to put the world on wings. . . . It is a tribute to Continental engineering and workmanship, that so many of these old-timers are still in service, and also that their fine successors, listed below, are first choice for the general use aircraft of today.

MODEL	No. Cyl.	Type	Displ.	H.P.
A65-8	4	H	171.0	65 @ 2300
C85-12	4	H	188.0	85 @ 2575
C90-8F	4	H	200.9	90 @ 2475
C145-2	6	H	301.3	145 @ 2700
E185	6	H	471.0	185 @ 2300
E225-8	6	H	471.0	225 @ 2650
O-315-A	4	H	315.0	150 @ 2500
O-470-A	6	H	471.0	225 @ 2600
W670-23	7	R	667.8	240 @ 2200

ONLY CONTINENTAL BACKS YOU WITH ESTABLISHED WORLD-WIDE SERVICE

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN



LOCKHEED'S ALL-PURPOSE CABIN FOR 350-MPH. SUPER CONSTELLATIONS, due for airline service later this year, divides 76-ft.-long passenger space into numerous compartments. Cutaway shows standard 59-passenger version. By removing and respacing some seats, it is made into a 47-passenger maximum luxury cabin. By clearing away lounge, galley and partitions, extra seats boost its capacity to 99 tourist passengers. —(Lockheed Photo.)

Questions and Answers for Airport Operators

Trade Spread for the Small Town Operator

QUESTION: I read your Question and Answer entitled "Opportunity For Small Town Operators" in the December issue. Will you please go a little further and tell me how I'm going to reach those people you include in my extended trade territory. I can't as a small town operator knock on every village and farmhouse door. I can advertise in my county paper and have done so, but it is my feeling that such advertising must be continuous to be effective and that is likely to make it a considerable cost.

ANSWER: In the December issue we said that we thought an operator could extend his trade area to 40 or 50 miles around, utilizing existing airports. We'd like to go a step further. Just now there is in front of us a map of our own state. We have drawn circles of 40-mile radius around all the airports in the state on which there are operators. Those circles pretty well cover the state.

The most interesting discovery we

Write for latest illustrated brochure describing this unique piece of equipment.

The Narco Simplexer —Outstanding "First" in Communication Convenience!

The SIMPLEXER combines the first light-weight, wide-band VHF transmitter, with the radically new "whistle stop" crystal calibration for simplex reception.

The powerful VHF transmitter provides 12 crystal-controlled channels which may be located anywhere within the band from 118 megacycles to 127 megacycles. Crystal kits containing 12 crystals specially selected to fill YOUR crystal requirements are available at a special price, or you can expand the number of channels one at a time as your requirements increase.

AIR ASSOCIATES INC.
3214 LOVE FIELD DRIVE DALLAS, TEXAS

Main Office . . . Teterboro, New Jersey
Branches . . . Chicago, Glendale, Miami, Hackensack

NEW CHAIRMAN of the Aircraft Industries Association's Utility Airplane Council is R. T. Amis (above), president of Aero Design & Engineering Co., of Oklahoma City, which manufactures the Aero Commander. Amis is also on the AIA board of governors.
—(AIA Photo.)

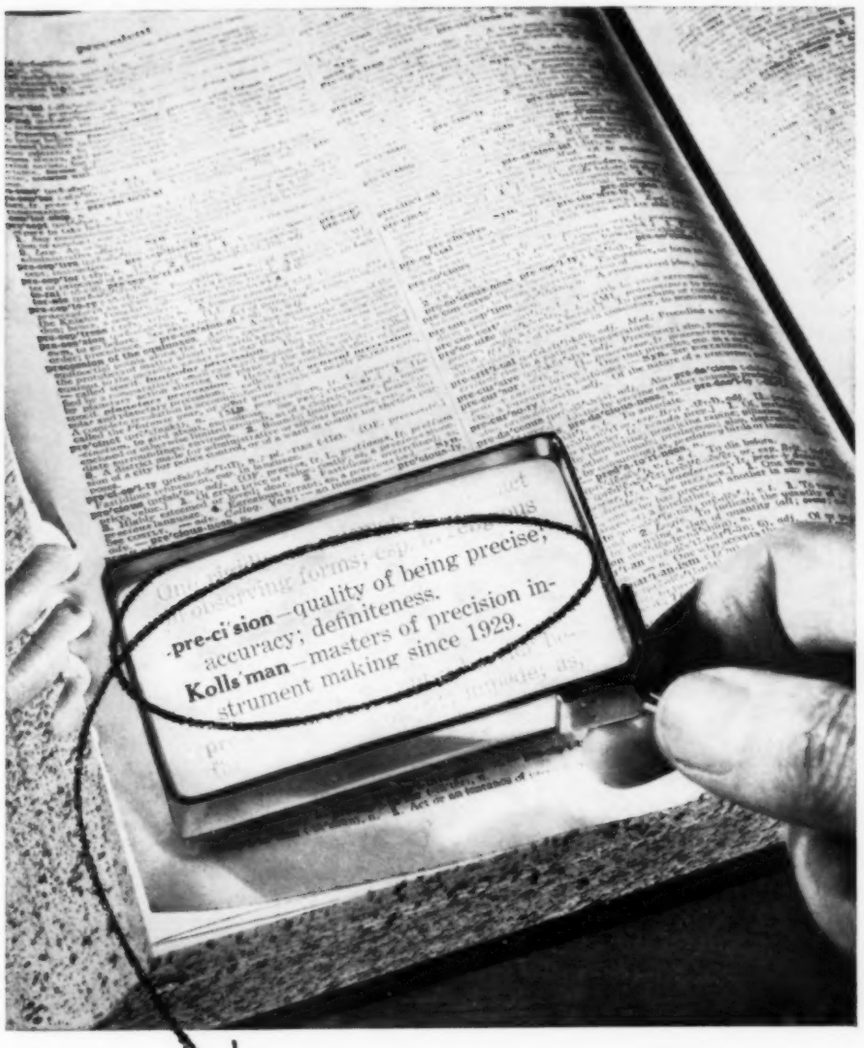
made was that within each 40-mile circle there were a lot more people than we thought. We took a town in the center of such a circle. It has a population of 12,000 people, a good paved airport and hangar and shop buildings. That's where the operator is located. But surprisingly enough there are 34 other towns or villages in that circle and the combined population is 55,000 people. When the rural population is added it reaches a total of better than 100,000. There are 5 other airports in the area and two of these have small operators.

In a more sparsely settled ranching section of the state we repeated the process around a town of 8,000 people and found thirty thousand more people in surrounding towns and rural areas.

In both these cases, the fact that impressed us most was that there were large numbers of people in towns and villages without airports yet within short road mileage of airports. These people are just as important as possible customers as those who live in towns with airports whether active or inactive.

Now to your question. Advertising of some sort is necessary. This is especially true where it is desirable to tell people they can have your diversified flight services despite the fact they have no airport or have an airport that does not have any operator's services. You must get your name, services and telephone number into as many businesses and homes as possible and keep it there.

What better medium can be found than the telephone book, not just in your town, but also in the directories serving the towns and rural areas around? So if you'll check this with


pre-ci'sion—quality of being precise; accuracy; definiteness.
Kolls'man—masters of precision instrument making since 1929.

Synonyms

THE KOLLSMAN INSTRUMENT CORPORATION—designers, developers and manufacturers of precise, dependable instruments in the fields of:

Aircraft Instruments and Controls • Miniature AC Motors for Indicating and Remote Control Applications • Optical Parts and Optical Devices • Radio Communications and Navigation Equipment

While current facilities of our laboratories and plants are geared to production for National Defense, the planning divisions of Kollsman are ever active. And versatile Kollsman research engineers stand ready to assist America's scientists in the solution of instrumentation and control problems.

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST, NEW YORK — GLENDALE, CALIFORNIA
SUBSIDIARY OF
Standard COIL PRODUCTS CO. INC.

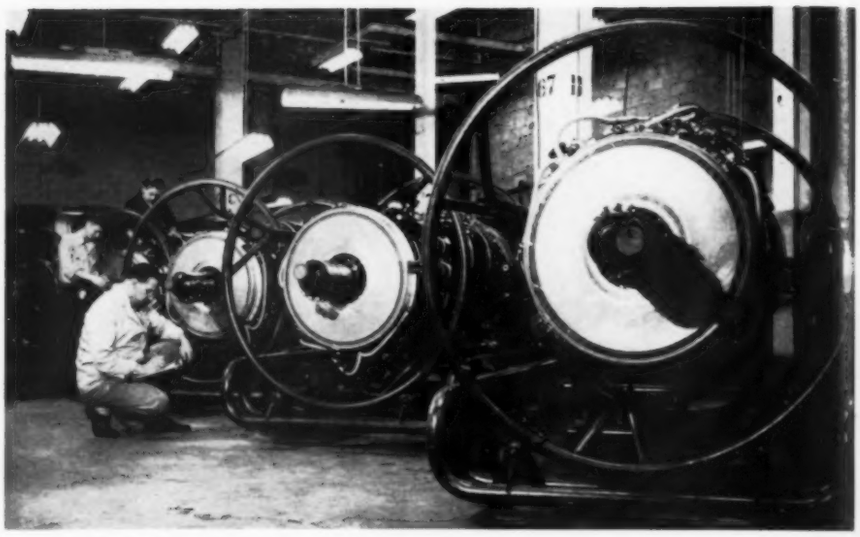
local exchanges around and see what you can do within your means, you can lay a foundation for your use of press advertising, turning such advertisements to seasonal or specialized advertising, and still be sure that such advertising adds impact to your selling program.

IT'S CHEAPER BY FAR THAN GOING BY CAR

It Makes CENTS to FLY

CENTRAL AIRLINES

Serving 24 Cities in Texas, Oklahoma, Kansas and Arkansas



QUANTITY PRODUCTION OF WRIGHT J65 SAPPHIRE JET ENGINES has been attained by Wright Aeronautical at its Wood-Ridge, N. J., plant. This turbo-jet is rated at 7,200 lbs. of thrust and powers the new Republic F-84F Thunderstreak. Wright Aeronautical brought it from blueprint to production in a record-breaking time of only 16 months.

Help for the Busy Manager

QUESTION: The chairman of our airport commission called me today and suggested that I plan a trip to look at a number of airports with a view to shaping up our own policies and planning from the knowledge I would gain from such a trip. I'd like to go but it seems to me it would be bad practice for me to leave the airport for two whole weeks. In the two years I've been airport manager I've never taken more than three days off in a row.

I've got good people but no one I can actually call an assistant. I'm in a bad position on this, I guess. I've just realized as a result of this suggestion that I've been doing every-

Engineers

AN INVITATION TO YOU TO GO PLACES WITH FAIRCHILD

Roy W. Lessard, Assistant Chief of Design. Has had extensive aeronautical design and structures experience with many leading aircraft manufacturers and is part of the Fairchild engineering team.

A secure future, exceptional opportunities for advancement, and a high starting salary await you at FAIRCHILD. We have openings right now for qualified engineers and designers in all phases of aircraft manufacturing.

Paid vacations, liberal health and life insurance coverage, 5-day, 40-hour week as a base. Premium is paid when longer work week is scheduled.

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD Aircraft Division
HAGERSTOWN, MARYLAND

Don Flower Joins Jack Galbraith In New Aviation Insurance Business

A NEW firm, Galbraith and Flower, aviation insurance underwriters, with offices in the Allis Hotel at Wichita, Kansas, has been formed by Don Flower, former sales manager of Cessna Aircraft Company, and Jack Galbraith, widely known aviation underwriter.

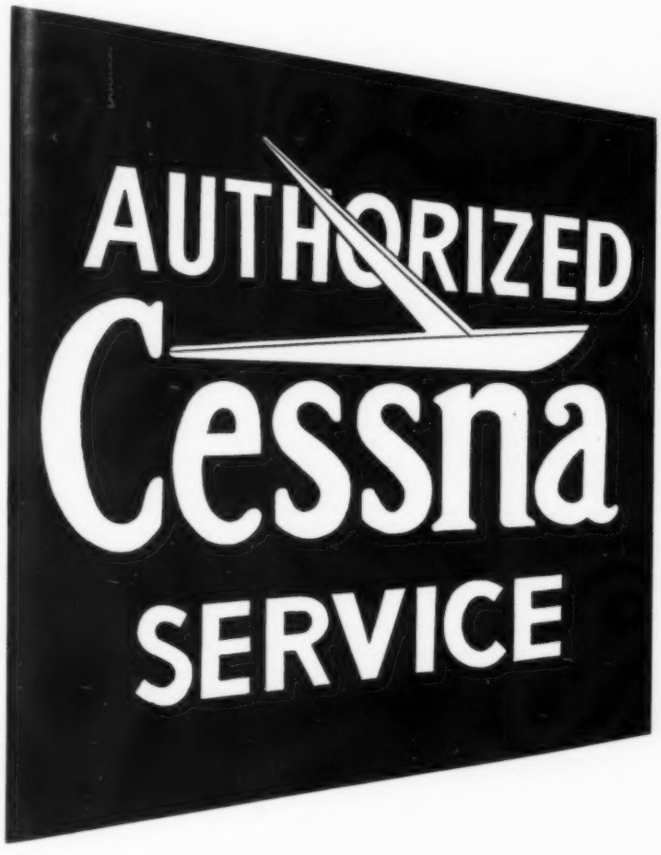
They have issued the following statement of interest to aircraft owners and operators:

"Everyone on both sides of the aviation insurance picture has been pleased to see the gradual and consistent reduction of insurance costs. These reductions are the direct result of several factors—better airplanes and engines, good maintenance and, especially, a safer job of flying.

"Our plans have been worked out to operate in a manner that will give unusual service to the aviation insurance buyer anywhere in the United States. Since lower insurance costs are the direct result of fewer losses, with this broad coverage of the whole country we can concentrate on the writing of those risks that will produce a better-than-average experience, namely, the owners of good airplanes which are well maintained and safely flown.

"Coverage will be placed only with companies that are recognized nationally and which have established the best reputation in the handling of losses. Our objective is to build a large portfolio of accounts with far better than average risks which will permit us to provide this type of buyer with better insurance at rates reflecting this good experience background." ★ ★ ★

Free Service Policy for Cessna Owners



Cessna and its Authorized Service Stations are making history this year, pioneering a completely new Owner's Service Policy which is given with the purchase of all new Cessnas. Without charge, Authorized Cessna Service Stations will gladly welcome an opportunity to honor the two coupons attached to each Owner's Service Policy. One is for a free initial (or 10 to 25-hr.) inspection. The other is for a free 100-hr. inspection.

It takes leaders to pioneer an important new service like this—leaders with nationwide reliability and business-like methods. But the Authorized Cessna Service Stations listed below have long been leaders in progressive aviation. Take, for example, our long-established famous Flat Rate Service. It guarantees every Cessna owner, new or old, three important things:

1. **You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all your maintenance needs.**
2. **You get genuine Cessna parts and factory-trained workmanship.**
3. **You save money and time and we stand behind every job for your fullest satisfaction.**

More and more Cessna owners are recognizing the importance of these Flat Rate Service advantages.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Aviation, Inc.
15th Street Air Park
Tulsa, Oklahoma

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Dal-Tex Aviation, Inc.
Highland Park Airport, Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

West Texas Flying Service
Midland Airport
Midland, Texas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

KNOW
where you are!
with OMNI!

Aircraft Radio Corporation
VHF
Navigation Equipment

Safe, drift-free, static-free OMNI gives you a reliable signal to follow, whatever your bearing. And ARC's compact Type 15D VHF Navigation Equipment makes OMNI available to executive aircraft of any size, as well as to private and transport aircraft. Just tune in OMNI and keep the needle of your ARC indicator on zero!

In addition to OMNI navigation, the 15D provides for use of the visual-aural ranges, and amplitude runway localizers. Add transmitter and receiver units of ARC's Type 12 equipment and you have independent, static-free voice communication.

Whatever your needs in navigation and communication, there is ARC equipment to meet them. Write today for all the details.

ARC

All ARC Airborne equipment is Type Certificated by CAA. It is designed for reliability and performance, not to meet a price. Installations for both single and multi-engine planes are made only by authorized service agencies.

Aircraft Radio Corporation
BOONTON, NEW JERSEY
Dependable Electronic Equipment
Since 1928

TEMCO T-35 BUCKAROO PRODUCTION FOR OVERSEAS DELIVERIES is under way at Dallas, the USAF having ordered a quantity for the Mutual Defense Aid Program. Powered with a 165-hp. Franklin engine, the 2-pl. trainer will carry two machine guns and 1,000 rounds of ammunition, ten 2.25-in. rockets and intervalometer fire control, and gun sight with gun camera. Thus MDAP Buckaroos can serve both as tandem trainers and for possible ground-support combat duty.

(Temco Photo.)

thing myself and not letting anyone else in on it. I believe I should have trained someone to take over in my absence. I haven't done so because I felt I should know every detail and concept of the operations myself and have been so busy I haven't thought much about turning anything over to an assistant or making one of the boys an assistant.

Now my question is what can I do about it in time to make that trip?

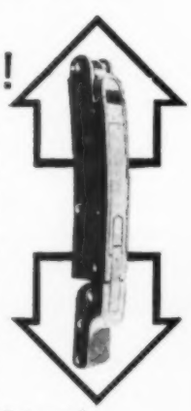
ANSWER: You really have two problems. The first is your immediate problem and the second is to insure that you won't be faced again with it.

For your immediate problem look over your employes and take the one who has shown evidence of having the greatest sense of responsibility, the best judgment and most experience on the airport. We hope you can find all three of these things in one man. The qualification are listed in what we believe to be their order of importance.

Then sit down with him and with your secretary and tell him what you want him to do in your absence, all the day-to-day duties and inspections, what matters are pending and what action, if any, needs to be taken while you are away, and what matters need discussing with the airport commis-

SIMMONDS
ENGINEERING BRIEFS

TONS OF TENSION on a 6 oz. LATCH!



This Cowling Latch, in 6 oz. and 8 oz. weights, withstands loads of 7000 lbs. in tension, 7000 lbs. in shear. Fits flush when installed. Provides for cowling pull-up and for adjustment. Positive action, simple construction — only two basic parts — housing and toggle. Can be used on hinged or detachable panels.

Simmonds Access Latch also available for flat panels, cargo doors etc. Weighs only 3.2 oz.; takes tension load up to 2700 lbs.

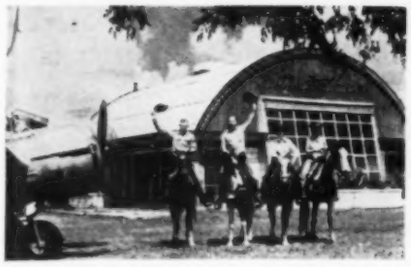
For bulletins, write

SIMMONDS
AEROCESSORIES, INC.
TARRYTOWN, NEW YORK

Branch Offices: Glendale, Calif. • Dayton, Ohio
Dallas, Texas • Washington, D.C. • Montreal, Canada

Associated Radio
CARL FOX
TONY AGUILAR
LEE LANFORD
LOVE FIELD • DALLAS

ASSOCIATED RADIO is Distributor for **COLLINS** Dealer for **ARC** and **BENDIX**



SOUTH CAROLINA AERIAL APPLICATORS GOT OFF TO A GOOD START in 1953 with a recent meeting at Columbia with 35 operators attending for affiliation with the National Aviation Trades Association. Left to right in the picture are Charles A. Parker, NATA director from Washington; Earl Flowers, South Carolina Aviation Trades Association vice president; Tom Ferguson of Albany, Ga., NATA vice president; Paul Carriker, CAA 2nd Region safety division, and Andy Andrews, S. C. Aeronautics Commission director.

—(NATA Photo.)

Fly to the Flying L

...for Holidays in the Hills!

A happy haven for airmen — Texas' famous fly-in ranch where friends gather for fun. Your favorite sports. Superb guest cottages.

For overnight, a week or a season.

sion if they come up while you're away. Your secretary is important in this respect because if she has been with you any length of time, she knows a lot more about the day-to-day affairs of your office than you think she does. We know you have a secretary because we saw her initials in the lower left hand corner of your letter. Your man will be able to get a great deal of help from her. She probably knows your way of thinking nearly as well as your wife does. Be sure both employes will call on the chairman of the airport commission if they get beyond their depth.

Then make a day-to-day itinerary so that you can be reached any time during your absence. Advise all employes that your man will be in charge and don't worry about the airport.

Now for the long-range plan. You need someone who can take your place

Precision...

In the Rebuilding of Aircraft Engines and Engine Accessories Is Essential to a Good Reputation. Our Customers Have Proven the Reliability of Engines and Accessories Rebuilt by . . .

PRECISION AEROMOTIVE CORPORATION

MUNICIPAL AIRPORT — Milby-6636 — HOUSTON 17, TEXAS

Clearly the Best way to clean a windshield...

WHIZ "C" WINDSHIELD CLEANER

Here's Why "C" is BEST

1 NON-CRAZING—Can be used on glass or *any* plastic—contains no harmful solvents. Will not craze or cloud.

2 WORKS FAST—Quickly removes oil spatter, grime and bug juice.

3 EASY TO APPLY AND REMOVE—Leaves surface clear—free of dust or film.

4 NOT ABRASIVE—Cannot scratch or dull window surfaces.

5 NON-INFLAMMABLE, NON-TOXIC—"C" is safe to use—safe to store!

"C" is a quality WHIZ product—made by the world's largest manufacturer of quality maintenance products.

Ask your supplier for

WHIZ "C" WINDSHIELD CLEANER

CLEARLY THE BEST

Whiz

Available in pints and gallons

Industrial-Aviation Division

R. M. HOLLINGSHEAD CORP.

Leader in Maintenance Chemicals

Camden 2, N. J. Canadian Offices: Toronto

at any time you can't be reached. If the man you pick has the qualifications and demonstrates that he can do a job while you're gone on your trip, give him a boost into an assistant's role. If not, look around and find such a man, perhaps from one of the schools which teach airport management. With any executive position there should always be some one in line to take over in an emergency or an absence and to take on many chores you do yourself. This is especially suitable under the airport commission form of management since continuity of management is more likely than under purely administrative appointment.

When you do get an assistant give him increasing responsibilities and back him up. If you refuse to let him use his judgment, you'll never know whether that judgment is sound. Conceivably you may some day get a chance at a bigger airport job. Part of the judgment of your own ability may rest on whether you have built up someone to take your place. ★ ★ ★

SERVICE GUIDE FOR FLIERS —

WHERE to STOP

IN SAN ANTONIO . . . IT'S ALAMO AIR LINE SERVICES

On San Antonio Municipal Airport transient pilots who want the best in prompt and efficient service always stop with Alamo Air Line Services, Inc.

Texaco Products — Storage — Tie-Down

Next time you're down our way, drop in!
Free Transportation to and from Terminal Bldg.
24-Hour Charter Service Telephone Travis 2649

Flying's Swell at the FLYING L

An adventure in real Western life for all the family . . . Superb food . . . Your favorite ranch sports . . . Cozy-comfort guest suites. Located at Bandera, 32 miles West of San Antonio.

CLASSIFIED ADVERTISING

FLIGHT MAGAZINE'S CLASSIFIED ADVERTISING RATES ARE 8c per word (minimum rate $2)

BOOKS

AVIATION BOOKS BY CHARLES A. ZWENG prepare you for your rating. These outstanding texts lead the field; frequent revision protect you with latest authentic "multiple choice and map examinations" with new material not available elsewhere. There is a text for each rating, viz: Flight Instructor $3.50; Aeronautical Training (Private & Commercial) $3.50; Meteorology for Airmen $3.00; Airline Transport Pilot $4.00; Flight Engineer $4.00; Aircraft Dispatcher $4.00; Link Instructor $4.00; Aircraft & Engine Mechanic $4.00; Radio and Instrument Flying $4.00; Practical Manual of the E6B Computer $2.50; Parachute Technician $3.00; Flight Instructor Oral Examination $1.00; Airport Operation and Management $4.50; Zweng Aviation Dictionary $6.00; Flying the Omnirange $4.00. (Free Catalog). Pan American Navigation Service, 12021-27 Ventura Blvd., N. Hollywood, Calif.

Over 30,000 STUDENTS have used "FROM THE GROUND UP" as their examination primer. Covers elementary Theory of Flight, Airmanship, Meteorology, Air Navigation, Radio, Aero Engines and Airframes. Explains and solves 96 CAA Commercial Pilot Examination questions. Concise. The whole thing is packed into 136 pages. Written in simple non-technical language throughout. Send $2.75. No C. O. D's. Department "A", Aviation Service Corp., Port Credit, Ontario.

DEALERSHIP

Airport operators send today for TAYLORCRAFT dealership information. Get in early on big expansion program, TAYLORCRAFT, INC., Conway-Pittsburgh Airport, Conway, Penna.

EXECUTIVE TRANSPORT AIRCRAFT

DOUGLAS, LOCKHEED, BEECH, GRUMMAN, and CURTISS aircraft for sale. For top value executive aircraft call or write ATLANTIC AVIATION CORP., P. O. Box 146, Hasbrouck Heights, New Jersey. HA8-1740. Complete aircraft maintenance facilities at Teterboro, N. J. and Logan Airport, Boston.

MULTI-ENGINE AIRCRAFT

For complete market reports of available Beech, Convair, Curtiss, Douglas, Grumman, Lockheed or other multi-engine aircraft, write or call William C. Wold Associates, 516 5th Ave., New York 36, N. Y., Telephone Murray Hill 7-2050.

POSITION OPEN

SALES MANAGER for Midwestern accessories manufacturer. Essential to have thorough knowledge of aircraft industry relative to accessories for jet engines and airframes. Must be capable of directing a sales and service organization. Please submit complete education and employment abstract. All replies will be treated confidentially. FLIGHT MAGAZINE, Box 750C, Dallas, Texas.

POSITIONS WANTED

If you need a man with a strong background in sales and advertising and with executive ability; a man with vision, imagination and ideas, please contact me. I have the above, plus a commercial ticket with instrument and instructor ratings, SEL&S. TT 800 hours. Age 27, married, children. Available after March 1st. Christopher Matson, Riversille Road, Greenwich, Conn.

LUSCOMBE

LUSCOMBE, $1,850: Clean Luscombe Silvaire 8E De Luxe, always hangared, never damaged, one owner since new, low time, McCauley propeller, Narco Omni Homer with VHF receiver and transmitter, sensitive altimeter, turn and bank. FLIGHT MAGAZINE, Box 750-L, Dallas, Texas.

TAYLORCRAFT

TAYLORCRAFT SPORTSMAN (new model 19) now available for immediate delivery. America's finest 2-place, side-by-side airplane. Extra big baggage compartment gives 4-place cargo utility. Lowest price including starter, generator, 12-volt system, etc. Ideal for CAP, farm, business man, training. See your local airport operator or write today TAYLORCRAFT, INC., Conway-Pittsburgh Airport, Conway, Penna.

FOR SALE

FIXED BASE OPERATIONS AND FLIGHT SCHOOL located in Oklahoma. . . . A going operation with Korean veterans flying from sod field adjacent to main paved highway. Approved for private, commercial and instrument training. Active storage, gas, oil and shop business. Storage income exceeds rentals. Sale includes unflown time on GI's and airplanes, shop equipment, furniture, fixtures and lease improvements. Located near large city. Worth checking into. Box 750-K, FLIGHT MAGAZINE, Dallas, Texas.

FOR the BEST in RADIO SERVICE . . .

Require: Experience in workmanship and the finest quality materials.

Matthews Electronics is highly qualified to give the aircraft owner specialized engineering and consultation service on his present or contemplated radio equipment. We will make planned proposals for special designed installations. Whatever your needs in aircraft radio MATTHEWS offers superior products with built-in qualities of excellence and the experienced technical knowledge that defies competition.

MATTHEWS ELECTRONICS
(Located in the Beechcraft Hangar)
Municipal Airport San Antonio, Texas

AIRPLANES — WHOLESALE

World's largest stock — Lowest prices!
Operators send for dealer discount setup.
We deliver, guarantee, etc.
Domestic and Export
Lists furnished in English and Spanish

VEST AIRCRAFT COMPANY
4600 Dahlia Street Denver, Colorado

BUYING OR SELLING

Either way our 28 years of experience and nation-wide contacts are at your service in Personal, Executive and Transport Aircraft.

JIM WELSCH
AIRCRAFT SALES
60 East 42nd Street, Suite 628
New York 17, New York Murray Hill 7-5884

AIRCRAFT PARTS WANTED

Will purchase partial or complete inventories of AN parts, instruments, fittings, conduit, bearings, hardware—anything for aircraft. No inventory too small—call, wire, or write.

AIRCRAFT COMPONENTS INC.
Benton Harbor, Michigan
"Aviation's Leading Supply House"

WINGS, INC.

Wings Field, Ambler, Pa.—Phila. Intl. Airport
AIRCRAFT SALES & SERVICE SINCE 1929
Consult us with confidence before BUYING or SELLING any type aircraft. You pay nothing for our EXPERIENCE and INTEGRITY.
AMBLER 1800

as new as jet airliners!

THE H-6B GYRO-HORIZON
DESIGNED FOR HIGH-SPEED AIRCRAFT

The new Sperry H-6B Gyro-Horizon provides *accurate indications—up to the speed of sound.* This significant advance has been achieved through the development of special temperature compensated parts, stainless steel gimbals, and stepped up gyro efficiency.

In keeping with the new speeds in jet transportation, the H-6B Gyro-Horizon also features improved quick-erection mechanisms. These incorporate a new, manual instantaneous starting-setting.

Again Sperry's advanced research and engineering is meeting the demands of increased speed . . . *with speed.* Our Aeronautical Department will be glad to supply complete information upon request.

FEATURES OF THE H-6B

Improved bezel presentation... with maximum reduction of parallax to eliminate angular distortion, improved reference airplane and adjustment, increasing cone of visibility, and elimination of working parts affecting visibility. **Three phase circuit protection indicator • Minimum of turning error • Non-Tumbling Freedom of roll through 360 degrees**

SPERRY GYROSCOPE COMPANY
DIVISION OF THE SPERRY CORPORATION

GREAT NECK, NEW YORK • LOS ANGELES • SAN FRANCISCO • SEATTLE • CLEVELAND • NEW ORLEANS • BROOKLYN
IN CANADA • SPERRY GYROSCOPE COMPANY OF CANADA, LIMITED, MONTREAL, QUEBEC

Now...

Riley Aircraft Contracts for Quantity Production by TEMCO AIRCRAFT CORPORATION

To Help Us Meet Demands for the New Riley Twin NAVION CONVERSION

We Had To Expand Production—to meet the growing demand for America's most eagerly sought airplane, the *Riley Twin Navion*. Now *Riley Twins* will roll from Temco's large-scale conversion lines, which have converted thousands of trainers, fighters, bombers and multi-engine transports for governments, airlines and corporate owners the world over.

With Quantity Production, the *Riley Twin* is more than ever America's best buy for safe, dependable, multi-engine air transportation—at reasonable initial investment and low operating costs. The *Riley Twin* features Hartzell full-feathering, constant-speed propellers and 140-150-hp. Lycoming engines for the kind of performance the public has long needed and waited for.

Schedule Your Navion Conversion Now! *Riley Twins* are also available to those who do not own Navions. Write, wire or call today!

Phone 3-1541

Broward Co. Intl. Airport
Fort Lauderdale, Florida

Riley Aircraft SALES COMPANY